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ABSTRACT

A cross-cultural test measuring need-achievement motivation was developed and administered to 634 American Indian, Spanish American and Anglo high school seniors attending 24 schools, including Federal, public and private boarding and day types. Need-achievement was related to the following types of measures: academic, aptitude, intelligence, and self-efficacy. A factor analysis of 104 test items yielded 3 factor dimensions. The first delineated a broad achievement, aspiration, teacher rating, and aptitude factor; a second yielded a more specific academic achievement and clustering of specific aptitudes; and a third factor is principally defined by a generally positive clustering of positive semantic differential measures. The validation of the test is judged as sufficient to warrant a follow-up study for the comparative purpose of establishing the most absolute validity possible, for both academic and nonacademic predictor variables. Part I of this document deals with the test product itself. Part II is devoted to the methodology and validation of the need-achievement test. (Author/JH)

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FINAL REPORT
PROJECT NO. 8-H007
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VALIDATION OF A TEST TO MEASURE NEED-ACHIEVEMENT MOTIVATION AMONG AMERICAN INDIAN HIGH SCHOOL STUDENTS

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October 15, 1969

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PREFACE

One of the major hazards of exploratory and descriptive studies is that they tend to become so voluminous that their essential contributions are lost in an imposing array of verbiage and data. This researcher has attempted to confront this problem through the simple format that follows:

Since the initial conception of this research was to create a measure that was more closely related to high school students' post-school performance than the school-specific tests which are currently available, Part I will begin with the test product itself. It is uncluttered with theory and technicalisms in order that the reader may grasp the simplicity of its content. Essentially it is an analytic method of examining the students' selective perception and affective-cognitive response in terms of a purposive behavior pattern that has been identified as need-Achievement motivation by over a hundred previous studies. Part I is a self-contained unit which is designed for broader distributional purposes and eventually will be combined with an educators' handbook regarding its use and applications.

Part II is devoted to the methodology and validation of the need-Achievement test. It is more technical in nature and attempts to summarize about twenty-thousand pages of raw data from which were derived the major scales and indices. In addition to the technical validity issues, some additional effort was made to present some of the more pragmatic aspects of the test.

The research reported herein has already generated considerable interest and has stimulated two additional studies which are currently underway. However two additional phases emerge as a consequence of the initial design and validation. First is the completion of a longitudinal follow-up study to establish the actual social and predictive significance of the test. Second, the research will not be completed until it has been applied by educators for the benefit of students and society.

TABLE OF CONTENTS

Part I

Scoring Manual for a Test of Need-Achievement Motivation

Page

I. INTRODUCTION AND TEST ADMINISTRATION 1

II. SCORING CRITERIA ACHIEVEMENT IMAGERY 2

III. SUBCATEGORY SCORING 5

- Need 6
- Instrumental Activity 7
- Anticipatory Goal States 8
- Obstacles or Blocks 9
- Nurturant Press 9
- Affective States 10
- Achievement Thema 11

IV. SCORING 12

Part II

Validation and Results

INTRODUCTION 15

I. THE METHODOLOGY OF PROJECTIVE TESTING 16

II. FINDINGS AND ANALYSIS 23

- A. Conceptual Framework for the Projective Test Interpretation
- B. Reliability of the Test 23
  - Time-associated and Form-associated Reliability 23
- C. Validation of the Test 26
  - 1. Content Validity 26
    - Table of Inter-item Correlation Coefficients
    - Table of Individual Category and Picture-to Total Correlations

2. Criterion-related Validity 27
3. Construct Validity 30
4. Academic relations and validity 32
    A. Academic Measures 32
    B. General Aptitude Tests 37
    C. General Intelligence Tests 38
    D. General Self Efficacy Indices 38
III. Summary 47
IV. Recommendations 48

Bibliography 50
APPENDIX A - Introductory Format for Test Administration and Stimulus Pictures 52
APPENDIX B - n-Achievement Scoring Sheet 53
APPENDIX C - Self Test for Scorers of n-Achievement 54
APPENDIX D - Practice Protocols 59
APPENDIX E - Description of Major Variables and Indices 67
APPENDIX F - Copy of Test Battery Used 69
APPENDIX G - Schools Cooperating in the Study

Part I: Scoring Manual for a Cross-Cultural Test of Need-Achievement Motivation

I. Introduction:

The critical data for this instrument was collected under the auspices of a National Institute of Mental Health Traineeship Program in Culture Change at the University of Colorado. Most of the pretesting and methodology was developed in conjunction with the Navajo Urban Relocation Project at the Institute of Behavioral Science, Dr. Theodore Graves, Director. The specific validation phase has been sponsored by the Department of Health, Education and Welfare, Bureau of Research, under grant # OEG 8-8-08007-2004(057).

The following manual has been developed from the responses to an individually administered test consisting of a set of six stimulus pictures given to over 200 Navajo Indians and then administered in a revised format, consisting of five pictures and given to 24 groups totalling some 635 individuals, consisting primarily of Indians but also including Spanish-American and Anglo comparison groups who attended the same schools. (The pictures are given in Appendix A.)

The test pictures were drawn by a Navajo artist to represent five universal situations within the experience of virtually all subjects tested. These are: office, school, group, city and monetary situations which are designed to elicit achievement themes regarding the individual's motivational set respecting five related areas: educational values, employment values, group values, urban values, and monetary utilities or economic values.

In the course of the interview each picture is introduced and then the subject is asked five questions: (1) What is happening in this picture? (2) What happened before this picture? (3) What is the young man thinking or wanting? (4) What will happen next? (5) How will the story end? These five probes serve to standardize the stories' structures but not the content of each story, which is analyzed according to the following method:

This method represents a modification of the established Need-Achievement scoring technique as described by Smith and Feld in Atkinsons' Motives in Action, Fantasy and Society, 1958, pp. 685-694. The modifications are based upon the scoring experience of three judges, who are familiar with Navajo culture, and fall into two types. First, a general simplification of scoring categories was made, where it was found empirically that certain sub-categories used by McClelland did not contribute significantly to the overall measure. The second type of modification was concerned with the minimal criteria for achievement imagery in terms of contemporary Navajo orientations. These are described in specific detail below for each picture as well as in overall terms.

The basic departure from McClelland's version was that middle-class value judgments were avoided. Every achievement goal, i.e. shepherd or president, was judged only in terms of the motivational sequence and not any specifically culture-bound definition of what is deemed as socially accepted achievement goals. In addition the pictures are much more universal than McClelland's (e.g. a boy in a classroom vs. McClelland's boy playing a violin) and tap a broader spectrum of values specific to the purpose for which this test was designed. In fact this may be the only TAT test in existence which has been specifically designed to measure broad socially significant areas, specifically attendant to post high school behavior. A longitudinal follow-up study is currently planned to test more precisely how relevant current educational measures, and indeed Indian education per se, are to the student's subsequent post-graduate performance. For additional information concerning the development, design, and validation of this modified version of the Need-Achievement measure, consult Part II of this research report.

II. Scoring Criteria Achievement Imagery

Examine each story first for the presence or absence of Achievement Imagery (described below). If the specified criteria for Achievement Imagery cannot be met, the story is scored zero and no further analysis can be made.

The generic definition of Achievement Imagery is based upon the presence of one of more of the following three prerequisites:

(1) Competition with a standard of excellence, which is indicated when one of the characters within the story is engaged in competitive activity (excluding cases of pure aggression) where winning or doing well or better than someone else is the primary concern. Alternatively an individually imposed standard of excellence may be scored as Achievement Imagery when there is a concern with how well a particular task is done, e.g., specific mastery or true craftsmanship. The use of any adjective of degree (good, better, best) will qualify so long as it evaluates the excellence of performance.

Note: Don't confuse intensity of effort with Achievement Imagery which it may or may not be, for example, "Working hard and fast" can only be considered as Achievement Imagery when excellence at the task demands it. One may "work hard and fast to complete homework" in order to play outdoors, which is not Achievement Imagery, or "in order to get the best grade in his class," which is. Furthermore, the statement, "He is working slowly with great thoroughness" implies a concern with accuracy, itself a standard of excellence.

Evidence for Achievement Imagery can result from an instance of negative concern, such as "The student is worried because he can't understand an important meaning."

(2) A unique accomplishment will also qualify as Achievement Imagery. This criterion is met whenever one of the characters in the story is involved in accomplishing something above the run-of-the-mill task, or some recognized standard that will mark him as a personal success, e.g., invention, artistic creations, exceptional craftsmanship, an important discovery, or some other extraordinary accomplishment. No explicit statement concerning the outcome of the action is necessary where it is apparent that it would generally be acknowledged as a unique accomplishment. The following examples are illustrative: "This silversmith can make anything out of silver and he has just made a new style

bracelet" or "He is the first Navajo elected to the house of representatives."

(3) *Long-term achievement involvement*. This category is illustrated by any character in the story posing a long range achievement goal. Psychologically this associated with the ability to defer gratification in favor of a long-term achieved status. Any professional career (becoming a medicine man or tribal chairman), any skilled trade, or a concern for higher education are examples of direction toward a long-range goal, provided this is not considered merely instrumental in the attainment of some non-achievement goal.

Minimal Achievement Imagery is sometimes difficult to exemplify; however, the following examples have been derived by consensus of three experienced judges familiar with Navajo culture, and may serve as guidelines for the scoring of each picture. (The respective pictures are given in Appendix A.)

Picture #1 (Man talking with supervisor). The most frequently given minimally acceptable example is that of seeking gainful employment. In contemporary Navajo society job-seeking represents an effort above and beyond the traditional non wage-oriented subsistence pattern. It also represents a step in the direction of achieved, versus ascribed, social status. Thus "wanting a job," "asking for a raise," or "applying for a scholarship" are all acceptable as Achievement Imagery so long as they are not subservient to some other motive, e.g., "the man wants a job, so he can buy clothes, food and a car," or "He wants more paycheck so he can go out and have good drunk." However mere mention of the term "job" or "man thinking about a job," or reference to routine matters concerning ongoing work, are insufficient in themselves to be scored for Achievement Imagery.

Picture # 2 (Student in classroom). Here the common mention of "education," or "student thinking," or "want to learn," or "going to school" are insufficient unless somewhere in the story there is more specific achievement orientation, e.g., "wanting the *best* education," or "Student thinking about becoming a *great success*," or "Want to learn in order to *get ahead* and *become something in life*." Achievement Imagery is scored when "education," "learning," or "studying" are considered instrumental to the attainment of some explicitly stated achievement goal. Thus "thinking about graduating from high school," or "going to college" would meet our minimal criteria for Navajo society.

Picture # 3 (Man in a city). Seeking employment opportunities or individual betterment such as vocational training or continued education, especially college, are typical responses which comprise achievement criteria for this picture.

Picture # 4 (Man speaking to group). A common response to this picture is that there is a meeting to solve some community problem. This is clearly insufficient for achievement imagery. If the problem is specified and it falls within the usual achievement criteria, however, Achievement Imagery then may be scored even though the problem is a collective endeavor, e.g., "the man is telling his people why education is so important to helping their children to get ahead in life" or "He has been asked by his people to run for the office of tribal chairman because they think he is the best one." Individual competition is frequently encountered as, "wanting to become chairman," "desiring to be elected," or to "Show them that he is the best candidate" and are adequate minimal examples.

Picture # 5 (Man counting paper money). The mention of "counting money," or "wanting to spend it well" are quite inadequate. "Putting money in the bank" is a borderline case, since it doesn't differentiate whether it is with the intention of saving, or just a checking account, or to pay off a loan. Score Achievement Imagery where there is a clear-cut inference regarding savings or long-term achievement goals, or where the term "saving" is specifically mentioned. However saving for short-term items (food, vacation, car, etc.) are not sufficient, while major acquisitions (such as a house, or business, or continued education) are minimal Achievement Imagery.

III. Subcategory Scoring

The unit of scoring analysis is the phrase, and it is important to remember that while any individual phrase can be scored for Achievement Imagery and for any individual subcategory, no phrase may be used for scoring more than one subcategory. Also no subcategory (e.g. Need, Instrumental Activity, etc.) may be scored more than once in each story, even if there is multiple occurrence of a given type of imagery.

Need

To score for Need, someone in the story must state a desire to reach an achievement-defined goal. This is most commonly expressed by using a verb of "wishing," "willing" or "wanting" to attain some achievement goal. The achievement goal referred to may be specific, as in "He wants to be tribal chairman," or general as in, "He hopes to succeed." Need may not be scored from secondary or unrelated activity, e.g., "The judge wants his assistant to hand him the blue ribbon for presentation." Similarly a stated desire for help or assistance is not scored as achievement Need.

Examples of Need:

(051) #1, "He want the raise in pay check, he want a little money."

(095) #2, "He wants to study, He wants to study hard."

(452) #5, "He hopes to become famous."

In the second example if the statement had been "The teacher wants the Navajo to study hard," it obviously wouldn't be scored for Need.

Need may also be reflected by a statement of negative concern, i.e. "He is very worried that he might not win the scholarship." Need imagery is most frequently elicited by probe c (What is the young man thinking or wanting?). Expressed need for something is considered instrumental in attaining the goal and qualifies for scoring. The statement "he wants to learn" is scored for need when learning is instrumental to attainment of the achievement goal. The following rule of thumb has been established: if the response to probe c consists simply of stating an achievement goal, then it is scoreable for Need; minimal examples are "job," "raise," "diploma." If the subject responds with a non-desire laden verb or phrase, such as "looking," "asking," "thinking about it," or "wondering," it is insufficient to imply Need, though it may comprise Instrumental Activity depending upon the specific context. Finally, Need may not be inferred from the presence of Instrumental Activity (see below).

Instrumental Activity

This category refers to a description of means, or any activity which is directed towards the attainment of the stated goal or end. It represents some form of planned or future directed behavior, and may be manifest in either overt or mental activity. Look for a statement of activity within the story directed towards some stated goal (this statement of goal has usually served as the basis for scoring Achievement Imagery in the first place). Incidental actions such as entering an office in order to ask for a raise are not considered Instrumental Activity. However, "making an appointment for a job interview," "filling out a job application," or "Going to college in order to get the best job" all represent Instrumental Activity. What one should look for is some action that is viewed as a contribution to attainment of the achievement goal. If the activity in the story occurred in the remote past or is not directly associated with attainment of the achievement goal, it is not scored as Instrumental Activity, e.g.

(a) "Boy thinking."
(b) "Was in school."
(c) "Wants to get a good job."
(d) "Later gets a job."
(e) "Is happy."

Certainly school attendance is related to eventually getting a good job, however in the example, "He knows that to become a doctor nowadays you have to have a good education, so he's studying hard," the association is quite clear and Instrumental Activity is scored. Likewise the response "thinking" per se, is insufficient to justify scoring; however, "He is thinking about how to get a job" would suffice.

Instrumental Activity in the future tense may be scored so long as the statement represents more than mere outcome, e.g., "They will succeed" is insufficient, while "They will continue to work diligently until they succeed" is adequate for scoring Instrumental Activity.

Anticipatory Goal States

This category is defined by someone in the story anticipating the success or failure or probable outcome of his achievement attempt. "He dreams of becoming a famous councilman," or "He believes that he will win the prize." The statement may also manifest doubt as "He is afraid he will not get a scholarship" or "He is wondering what the outcome will be." The Anticipatory Goal State need not refer to the person in the story who is ultimately going to achieve the goal in question, e.g., the employer in picture #1 might be anticipating a successful career for such a creative young man. Anticipatory goal state normally occurs as a statement of expectation in response to probe c (What is the young man thinking or wanting?).

Finally, it is important to note that the Anticipatory Goal State must be scored from the viewpoint of the character within the story, or from the viewpoint of the story teller himself.

(242) #1 a) "Thinking about this boy, he's asking for a job." (Achievement imagery)

b) "I don't know.

c) "Well, I'd say he wants to get a job, he's thinkin' himself about he's gonna get a job, and things gonna be good, that's what he's thinkin'.

d) "Oh, he ask about a job and he look for a job.

e) "Well, he say there's no job."

Probe c illustrates a positive illustration of an Anticipatory Goal State in which he expects he's going to get a job, it is thus scored irregardless of the actual outcome, which in this case was negative (see response e).

(230) #1 a) "Here in the picture the boy come into the office and said to man, Apply for job, I'm looking for a job." (Achievement Imagery)

b) "Before he come to the office he was home and not workin'."

c) "He's thinking that he will not get a good job."

d) (no response)

e) "Well, it might come out good, or not very good."

In this story the Anticipatory Goal State is a negative one; see response c.

Obstacles or Blocks

This category is scored when the achievement-directed activity is blocked or impeded in some way. The Block may be either personal (internal to the character) e.g., lack of self-confidence, intelligence, knowledge, or mention of any kind of past failure, or the Block may be seen as environmental, (external to the character), e.g., "He never had a chance to go to school, or to learn a trade," or "he can't get a job at Kaibeto because there are no job openings there now," or "He had a good job but was laid off when the factory closed." The distinction should be noted between apparent obstacles which define the achievement goal itself, e.g., which are not scored for obstacle or block, and obstacles which affect the ongoing goal-directed behavior. Examples of blocks:

"He quit school, and is now trying to get back in so he can learn something.."

"He didn't learn no English herding sheep, and now wants to learn a good trade."

"He flunked the last test."

"The man is telling him he sorry, but he got no job to give him."

"This boy went to school but he got no education."

Nurturant Press

Any force or person within the story which aids, sympathizes, or encourages the character engaged in ongoing achievement-related activity is referred to as

Nurturant Press. This aid is generally personal in source, and must be in the direction of the achievement goal from the viewpoint of the character who is striving. Examples:

> "This man wants a promotion, and his boss says he'll help him learn to read blueprints so he can get promoted."
>
> "This boy is going away to school, he wants to learn a trade. His father is telling him that it is good and that it is the only way to get ahead nowadays."

A distinction must be made between Nurturant Press and the routine exercise of role responses, e.g., the teacher taught the class how to read, or the employer gave him a job.

Affective States

This category actually refers only to statements of affect as applied to the outcome concerning the achievement goal. The nature of this type of imagery may be positive, negative, or mixed. Positive affect is associated with active mastery, definite accomplishment, or clear satisfaction with the outcome (e.g., "He enjoyed winning first prize;" "He was proud of being elected chairman") or else a statement that implies definite objective benefit as a result of successful achievement and which permits the reasonable inference of positive affect (e.g., "He became famous;" "The tribe was proud of him"). Similarly, if a story is scored for Need and the achievement goal is attained then the inference of positive affect is permitted. If the subject "wants a better life," or a "good job," and success or failure in attaining these is explicitly stated, affective goal state may be inferred. However mere completion of lesser instrumental activity is insufficient to allow such an inference, (e.g., "He works his way through school and becomes a teacher," would be scored for Instrumental Activity but not for Affective States. However, if "He works his way through school and becomes a great teacher" or "is very happy about it," then Affective State may be scored.)

Negative affect occurs when a character in the story manifests emotional involvement over the outcome of his achievement effort, such as, (1) failure, e.g., "He was very upset because he didn't get the job," or "He went home disgusted that he hadn't won," or (2) when the outcome reveals the objective concomitant of complete failure which would permit the inference of negative affect, e.g., "He felt like shooting himself," or "He returned to the reservation and became a drunken bum." Naturally this category is most often elicited by probes d (What will happen next?) and e (How will the story end?). Example:

(000) "He went all the way to Denver to get a good job, but he didn't get any job, he was unhappy and a little mad because they promised him a job."

Achievement Thema

Thema is scored when the achievement behavior sequence is the central plot of the story. If there is a major counterplot other than the achievement sequence, or if there is any doubt about the achievement imagery being central to the story itself, Thema is not scored. In a case where weak achievement thema is present, and no alternative theme exists, the story is scored for thema. Example:

(000) #2 a) "He's studying hard, math.

b) "How he flunked the last test.

c) "Teacher is explaining the test.

d) "He'll try to study harder and do much better on the next test.

e) "He'll be able to understand the problems and do OK and feel happy."

The frequency of achievement related responses and the absence of any major counterplot permit this story to be scored for thema. Interpretation: "Studying hard" and the desire for improvement "try to study harder..." easily combine to produce Achievement Imagery. Response (b), "flunked the last test" is scored as a Block, while response (e) indicates Affective Goal State, "able to understand," "do okay," and "will be happy."

Additional examples of all the categories are provided in the practice scoring section.

IV. Scoring

Before scoring, it is helpful to clarify for oneself the means-end relationships within the story. This greatly facilitates recognition of need, instrumental activity and blocks.

A scoring sheet for the Navajo pictures is contained in Appendix B. Scoring is as follows: A score of one is given for the presence of Achievement Imagery. Achievement Imagery is also a prerequisite for the scoring of presence or absence of each of the seven subcategories. The presence of each additional subcategory is scored one, and as there are seven subcategories the maximum score for any given picture is a total of eight (Achievement Imagery, Need, Instrumental Activity, Anticipatory Goal State, Block, Nurturant Press, Affective Goal State, and Thema).

A special effort must be made to stay within the actually stated content of the story and to avoid all inferences that are not specified according to the manual. After becoming familiar with the scoring criteria, scorers should take the self test, then score the sample stories, and read the section on scoring procedure.

The n-Achievement score for a person is the sum of the scores obtained for all five pictures. Scores are only comparable for different individuals when they are scored for the same set of pictures and the testing situation is relatively constant. While it is theoretically possible for the subjects' scores to range from 0 to 40, it is more usual for achievement scores to fall within the lower range of the scale.

The following advice to scorers of n-Achievement stories has been gleaned from several sources, and is appropriate for any type of content analysis.

(1) Always review the scoring manual before starting a scoring session, in

order to refresh your memory, and refer to the manual while scoring whenever necessary.

(2) To minimize scorer bias when scoring a particular story, the scorer should not be aware of the individuals' scores on other stories. Scoring templates can be inserted over the score sheets before turning the page to score it. In addition: (a) Score all protocols for a given picture before going on to score the next picture. (b) Try to score all the responses to a given picture in one or two sittings to preserve approximately the same scoring set. (c) Shuffle the protocols before scoring each picture. (d) Never refer back to the subjects' scores on previous pictures when one is making a scoring decision concerning a subsequent picture.

(3) It is advisable that beginning scorers rescore protocols after a reasonable interval (at least two weeks) in order to provide a score-rescore reliability check for himself. He then should compare his scores to that of other scorers. This correlation should be in the vicinity of .90 or greater before the initiate considers that he has mastered the system.

(4) Additional means of reducing scorer biases include: (a) Consistent bias (as rigid or liberal tendencies) may be reduced by assigning each judge the same number of cases from a randomly selected set of protocols; (b) the scores obtained from different judges may be pooled into a common distribution (high-low splits), and the differences in scoring overcome by assigning z-scores based upon the protocol means of individuals scored by each judge; (c) A third solution is to assign each judge the complete set of protocols for an equal number of pictures in the test series. This is especially efficient when one is confronted with scoring a large number of protocols.

Before proceeding to the practice scoring section, this manual should be reviewed and then the self-test administered as found in Appendix C, following which one can compare his answers to those of the three judges, found at the end of the appendix.

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PART II

METHODOLOGY AND VALIDATION OF NEED-ACHIEVEMENT TEST FOR AMERICAN INDIANS

Preface

Throughout the world today many groups are striving for human betterment - attempting to increment their standards of living, to achieve long-range goals, and to establish a continuity of development that is conducive to social, political and economic stability. The fact that social change is inevitable and often desired is not new, but the idea that certain types of change can be anticipated and implemented is less widely acknowledged.

The extent of the behavioral scientist's assistance is limited by his understanding of the dynamic processes involved, even when the necessary and sufficient causal variables are known. Much of the foundation for community development ultimately rests on how concrete is the motivational commitment of individuals involved. This research should contribute to an increased understanding of the psycho-social dynamics of one particular variable: the need-Achievement motive. The findings should also contribute directly to current programs including: education and guidance evaluation programs, scholarship and vocational assessment programs, tribal planning and community development programs, employment assistance and government relocation programs. It is expected that the findings will also be applicable to many other groups concerned with the development and nurturance of this unique human resource - achievement motivation.

Background for the Study

The purpose of this section is to discuss the methodological issues of test construction, validity and reliability of a measure of need-Achievement motivation among Navajo, Sioux and Pueblo high school students. The primary data were collected under the auspices of the National Institute of Mental Health traineeship program in Culture Change at the University of Colorado, while much of the pretesting and design was an outgrowth of the Navajo Urban Relocation Project which was conducted by Dr. Theodore Graves through the research facilities of the Institute of Behavioral Science.

A major aim of the Urban Relocation project was to explore factors relating to successful and unsuccessful adjustment of Navajo migrants to life in the city. A subsidiary aim of the project was to develop valid and reliable measures for each of the variables which were considered relevant. In the creation of an adequate model of the urbanization process, the need arose to develop individual personality constructs capable of logically linking background characteristics of the migrants to their present behaviors. The migrant's motivational orientation appears to be one logical construct capable of filling this mediating position. Among the many human motives with which psychologists have worked, the need to achieve, to strive, to improve, to excel, to compete with some standard which generically characterize the need-Achievement motive (n-Ach), appeared particularly relevant (McClelland, Atkinson, Clark and Lowell, 1958; Atkinson, 1964) and applicable to many efforts which pertain to education and community development.

This report will present some of the methodological issues involved in the methodology and validation of a measure of n-Achievement appropriate for use with American Indian students. (A manual for scoring the protocols is described elsewhere, Michener, 1969.)

I. The Methodology of Projective Testing

In recognition of the need for a valid and reliable method of measuring human motives, Atkingon, McClelland, et al, have sought to clarify the relationship between free-associative thought and motivation through experimental methods of controlling and manipulating the strength of motivation. To this end they devised the n-Achievement test, whose conceptual predecessor was Murray's Thematic Apperception Test (TAT). It is somewhat remarkable that Murray's pictures, which were designed to elicit responses concerned with interpersonal relations, could produce responses relevant to a much more global relationship such as n-Achievement, and should be recognized as such. However it is even more incredible to expect that pictures reflecting distinctly middle-class American behavior should demonstrate much validity when administered in different social class and cultural contexts.

McClelland's (1961) explanation of economic development seeks to integrate both theory and measurement, basic and applied research, and psychology with other areas of knowledge including anthropology.

The main hypothesis of McClelland's 1961 work was: "...a society with a generally high level of n-Achievement will produce more energetic entrepreneurs who, in turn, produce more rapid economic development." (p. 205) He then demonstrated that individuals with a high need for achievement exhibited the requisite behavior for the entrepreneurial role. The role is characterized by moderate risk-taking and knowledge of the results of individuals' decisions. The role is also characterized by the motive to achieve success, with success symbolized by monetary success. Thus the ultimate dependent variable, national per capita income, should also be reflected on a more microscopic level of individual economic development. The problem was one of measurement of the personality factors.

A. Why Use a Projective Test?

The initial answer is simply because other methods have yet to provide researchers with a better measure, and because McClelland's method of empirical establishment of an objective means of content analysis happens to be based on projective data. Beyond this pragmatic reason for the use of the projective techniques, is the cross-cultural situation where bi-lingual fluency cannot be taken for granted, nor even the assumption of literacy in either language.

In addition: (a) Language differences: The students found it easier to express their responses to a "concrete" visual stimuli than the more abstract verbal task of responding to a more diffuse appeal for personal information.

(b) Technical barriers: It is also possible to reveal cognitive patterns that the subject has never consciously thought about or cannot even verbalize. This is particularly true in cross-cultural testing or any situation in which the subjects are unfamiliar with tests in general or the specific concept employed in the test itself.

(c) Less self-bias: The subject may reveal information he would have self-consciously modified in a direct question response. There is also less confusion between responses on the "ideal" and the "actual" or perceived levels of behavior.

(d) Greater situational specificity: More extensive information may be derived than with a so-called "direct" test. The interaction of the depicted stimuli with the factors of perception and association may be investigated in much more detail, e.g. selective perception, formal integration, etc.

(e) Standardization of context: Finally, it should be noted that the picture stimuli are accompanied by five standardized verbal probes (What is happening? What happened before this picture? What is the young man thinking? What will happen next? How will the story end?). This increases the comparability of the subjects' responses in terms of format and structure, but not in content and thus permits a more specific interpretation and enhanced predictive potential. It is important to note that most of McClelland's scoring categories pertain to the manner in which the subject perceives, internalizes and integrates the simulated behaviors depicted in each picture.

Two basic propositions underlie McClelland's measurement technique. The first is derived from psychoanalytic theory in general, which holds that motivational states have effect upon thoughts, fantasy, and behavioral orientations (Murray, 1938). The second proposition derives from experimental studies which indicate that motives can be aroused and that the degree of arousal is related to the conditions of arousal. Early studies examined the effect of hunger upon TAT responses, and demonstrated that some of the TAT measures were better than certain perceptual measures (McClelland, Atkinson, and Clark, 1949). For expanded discussion of these points see Proshansky (1950) and Zubin, et al (1965).

Certainly the hazards of cross-cultural testing are immense, but it was precisely this awareness that forced us to develop a test instrument specifically designed for the Navajo population. It should also be noted that there are fewer assumptions in analyzing a "thought sample" in terms of behavioral categories, regardless of the subject's culture, than are present for any test which is standardized for culture A and then applied to culture B, and which interprets the responses of the latter to be isomorphic with population A, and then generalizes from this sample to culture B as a whole. This latter assumption underlies all current educational testing in the 24 high schools represented in the sample.

The current test more than meets the minimal criteria for cross-cultural testing. These are: (1) Comparability of data-quantification is not a major problem in this case. (2) Neither is objective analysis a major problem (see reliability section below). (3) Detailed knowledge of both the psychometric instrument and of the culture concerned were integral to the test design.

(4) The greatest problem involves the issue of how well does the simulated response correspond to the actual situational responses observed at a later time? It is argued here that the greater specificity of our design permits a greater specificity in test interpretation than with any other current test, projective or otherwise, of achievement motivation. Thus while most projective tests are more concerned with construct validity, we are equally concerned with criterion-related validity and actual prediction of future behavior of a highly specifiable type. No systematic knowledge of any explicit relation-

ships between specific academic performance and its relationship to actual post school performance was known to any of the educators surveyed in the schools sampled.

B. The Measurement of Need-Achievement

The standard n-Achievement test, like related TAT measures, involves showing the subject a series of pictures for each of which he is asked to construct a short story. In addition, verbal probes are used to maximize the equivalency of the situational context for all respondents. The responses are then analyzed for specific configurations of achievement-oriented content. This content analysis aims at a quantifiable classification of the content in terms of a system of objective categories devised to yield data relevant to specific hypothesis about the person's behavioral orientation (Berelson, 1952).

Qualitatively the projective responses are not considered different from general behavior which means that the responses are representative of the persons normal interpretation of similar situations and of his usual response tendencies. Thus the nearer the stimulus cues are to the subject's experiential repertoire the more apparent the test's situational and attitudinal approximation will be, and the more meaningful the response. This means that in the selection of the thematic stimuli for test purposes the pictures should sample a broad spectrum of common experiences which are relateable to achievement-oriented behaviors.

C. The Indian n-Achievement Test Construction

Previous research specifically studying need-Achievement among the Navajo Indians has been limited to four studies. One consisted of content analysis of traditional myths and folk stories, whose results if taken as a normative measure ranked the Navajo very low in comparison to some eighty-seven other cultural groups on the n-Achievement ranking (Child, Storm and Verhoff, 1958). The second researcher (Lowell, 1953) relied upon verbal cues to elicit achievement imagery, and in addition varied the testing conditions to see if achievement motivation can be aroused in highly motivated groups. The third study (Rebousin and Goldstein, 1966) using McClelland's pictures and scoring technique, compared a highly unrepresentative Navajo sample (students attending Haskell Institute) with students at the University of Kansas. They found the Navajo sample outscored the latter in achievement motivation. All the above studies were primarily concerned with measurement of group differences, and none related them to specific individual aspects or were concerned with prediction of future achievement behavior.

The fourth study (Michener, 1965) studied the achievement-motivation of Navajo migrants to Denver, Colorado, and provided a basis for the current study of Indian high school students.

Since we are specifically interested in achievement motivation with reference to both academic and post school behavior, a technique had to be developed that was capable of measuring individual differences in n-Achievement. It is well established that pictures are more productive than verbal cues in eliciting responses so long as the characters and contexts depicted are meaningful to the respondents (Fried, 1954; Collier, 1957; Goldschmidt and Edgerton, 1961; Parker, 1964). Thus a set of pictures was constructed, tapping a wide range of potential achievement situations, appropriate for Navajo Indian respondents. Selected from a list of some twenty achievement situations was a set of five pictures pertaining to employment, education, urban orientation, leadership and monetary utilities. The selection was made by two judges (Graves and Michener) who had had experience with both reservation and urban Navajos. The selection included both traditional and non-traditional achievement contexts involving common situations which virtually all subjects had experienced at some time.

A Navajo artist was commissioned to illustrate the selected situations in a Navajo context and depicting Indian males of approximately the same age range as the subjects in order to maximize the respondents' identification. The five pictures used are presented in Appendix I. The pictures illustrated are:

> Picture #1 (Man talking with a supervisor) A young Indian adult is standing before a man who is seated behind a desk. Typical responses are that the man is: seeking employment, requesting a raise, discussing a problem, or telling his boss he's returning to the reservation.
> Picture # 2 (A student thinking) A young Indian adult is seated at a desk in a typical classroom situation, with an open book before him. The picture is designed to elicit educational orientations. Typical responses are: He's listening to the teacher, He's studying hard to get educated. He's wishing he was outside playing baseball.
> Picture # 3 (Man in a City) A young Indian is depicted carrying a suitcase in a city. He is obviously going or coming but it is up to the respondent to decide which and for what reasons. His reasoning generally depicts attitudes and expectations regarding: employment, failure, mobility, withdrawal or confrontation of individual problems.
> Picture #4 (Man speaking to a group) This depicts a tribal chairman accompanied by a younger Indian who is addressing an Indian audience. The speaker's attitude, topic and speech content are quite informative. The situation is Navajo but the topics are unlimited, and often refer to employment, education, politics, relocation and economic development.
> Picture #5 (Man counting money) This picture elicits a behavioral sequence involving the acquisition of the money (wages, gambling, finding it or theft) and then the monetary utilities pertaining to its expenditure (saving, or investment, spend on wife or the house, groceries or liquor) and attitude towards planning as well as personal feelings associated with the described outcome.

D. Administration of the Test

The test pictures were administered in a group setting with as relaxed a context as is possible within a school setting. Each person is assured of complete confidentiality in all matters and that his responses would not affect his academic record nor be scored for grammatical structure, but that we were primarily interested in his ideas. Standardization of the pre-test period was achieved through administration of thirty minutes of educational, demographic and psychological background materials.

A standard format was used (see Appendix I) in which not only the instructions were read, but each question as well. This also served to pace the students, although additional time was provided for any student to complete his responses. The probes (What is happening in the picture? What happened before this picture? What is the young man thinking? What will happen next? How will the story end?) are repeated for each picture shown at about one minute intervals. The scoring technique is described in detail in Part I of this report.

II. Findings and Analysis

A. Conceptual Framework for the Projective Test Interpretation

A clear conceptual framework is prerequisite for interpretation of any projective measure. It must also account for confounding factors and provide a systematic method of analysis. The reliability of the measurement and the validity of each interpretation must be demonstrated. A current review of interpretive systems is found in Zubrin et al, 1965. The scoring system adopted here is derived from McClelland's scoring system C, McClelland, 1958, which is the most widely adopted measure of need-Achievement used by psychologists. Finally, once the data are quantified, the results of content analysis must be subjected to reliability and validity procedures as in any other type of testing. The following section will describe these procedures.

B. Reliability of the Test

In line with the standards established by the American Psychological Association for the construction of test manuals (1966), two kinds of reliability must be considered: (1) time-associated reliability (stability) and (2) form-associated reliability (consistency).

(1) Time-associated reliability: While both types of reliability may be met by retesting the same individual with the same test, this is not always possible. The A.P.A. Manual states, "Retesting is not a theoretically desirable method of determining a reliability coefficient if, as usual, the items that constitute the test are only one of many sets (actual or hypothetical) that might

equally well have been used to measure the particular ability or trait." (1966, p. 24) It is also a very expensive and time-consuming proposition when one is working with a highly mobile population, and was not considered feasible in this case.

Other users of McClelland's scoring technique have reported considerable variation in test-retest reliability, so that no general assumption is without risk concerning this aspect. Kagan and Moss (1966) report a test-retest reliability correlation of .31 over a ten-year interval, while Haber and Alpert (1958) report a correlation of .70 over a three-week interval. The amount of variance attributable to change within the individual's motivational state is not known but is assumed to be relatively small and stable by psychologists. Additional test-retest findings are reported by Reitman and Atkinson (1958).

(2) Form-associated reliability: This is highly dependent upon the objectivity of the scoring system, its efficiency, inter-scorer agreement and its internal consistency.

(a) Objective scoring system. The efficiency of the technique of content analysis in converting the protocol responses into quantifiable form for the purpose of intersubject comparability is indicated by the level of interscorer agreement. The scoring categories themselves were derived from empirical analysis. We have made no additions to the scoring categories, so for further discussion of them one should consult McClelland, et al (1958).

(b) Interscorer reliability. Three scorers were trained; each scorer's results were then compared to a composite scoring in which all differences were resolved by the three judges. The percentage of agreements for each scoring category and for each scorer to that of the composite interjudge scoring is presented in Tables I, II and III. These tables show some range as expected, but also manifest an even more remarkable continuity when compared to the percentages of agreement reported in the literature (i.e. 79% to 96% agreement, averaging 86%, based upon 14 studies, reported by Feld and Smith, 1948). Tables I, II and III show that percentage of agreement as ranging from 89% to 92% with an average of 91%, which provides a very respectable comparison.

In addition, excellent interscorer reliability has been attained when one scorer had as little as six hours training. A fourth scorer was thus trained and attained a level of 95% agreement with one of the first judges, see Table IV. While this is not strictly comparable to the above percentages, a conversion of it to the composite scoring indice would probably tend to increase it.

Another type of scorer reliability obtains when one scorer rescores the same material after a period of time. This was checked by one judge rescoring the same protocols after a 3½ month interval, with an agreement of 94% with the original score, and an agreement of 96% with the three judge composite score being obtained. (The latter result indicates that the judge improved in approaching the more objective norm.)

(c) Internal Consistency. (1) If the effects of content-sampling are desired without the effects of response variability, one may use the "split-half" technique to ascertain internal consistency. This is not very appropriate in this case due to the obvious effects of differential content-sampling, as the set of stimulus pictures are each quite different and represent only one of many possible sets.

However an essentially similar type of estimated reliability coefficient may be obtained by an internal analysis of the individual test categories. The item analysis consists of two parts: (1) A tetrachoric correlation of scores for each scoring category was run against all the other scoring categories, yielding a 40 cell matrix (8 categories and 5 pictures), which indicates one type of internal homogeneity of the test. (2) Biserial correlation of each scoring category's contribution to the total achievement score was run, with all five pictures, and for each individual picture's contribution to the overall total achievement score.

The item analysis indicated that all 40 items correlated positively with the total score as expected, and that all but six items correlated at a significant level. Examination indicated that these six items represented items with very low frequency of occurence.

Biserial correlation ascertains the extent to which each of the eight categories and total scores for each of the five pictures contributes to the total achievement score. (The correlation is run between each subtotal vs. the total score minus the subscore's contribution to the total score respectively.) The results are presented in Table II. They indicate that the student picture correlates most highly with the total score, and if any picture correlates with academic achievement it would be this one. Second the three scoring categories which correlate most highly with the total score are Achievement Imagery, Instrumental Activity and Achievement Thema. This is expected and one might consider using a modified scoring system based only upon these three categories.

C. Validation of the Test

The problem of validity is essentially that of how well does the test measure what it porports to measure? Such an endeavor is far too complex with the unknown entities involved in such a unique test. Cook et al (1964) point out that although a "direct technique" tends to have more "face validity" to begin with, few tests of either technique ever confront the issue of validity. Most testers dodge the issue of validity by defining their terms in an operational fashion, i.e. I.Q. is operationally defined at the numerical quotient derived from the test score divided by the subject's age. This is tautological, but puts the onus of applicability upon those who extend the assumption to other applications.

The tester should be concerned with three kinds of validity: (1) content validity, (2) criterion-related validity, and (3) construct validity:

(1) Content Validity refers to the extent to which the items within the test accurately sample the domain of events which the test intended to assess. While it is no easy task to find situations of a universal nature - capable of eliciting responses from every person tested, I believe that the more general value orientations derived from stimuli depicting employment, education, economics, etc. meet this criteria better than any specific work scenes within Anglo society. In fact we selected situations that could be construed by both Indians and Anglos to elicit achievement orientations cross-culturally.

Since there is currently no better measure for measuring n-Achievement motivation per se, and until we can demonstrate that the test has predictive validity with respect to subsequent behavior of the individuals tested, we cannot rise above the limited claim, that n-Achievement is what this test measures. A follow-up study of the individuals tested is planned and until then it is impossible to demonstrate absolute content validity. Most educational tests circumvent this important level of validity and emphasize only construct validity, which will be discussed shortly.

(2) Criterion-related validity is demonstrated by comparing the test scores with one or more external variables which are considered to tap the same entity in question. It may be of two types: (a) Concurrent validity or (b) Predictive validity. In the case of concurrent validity the criterion measurement is taken at the same time and comprises an alternative measure. Unfortunately, there currently exists no other test of achievement motivation that is cross-culturally applicable to the Indian sample. There are also major problems involved with most psychological tests that attempt to measure values. While there are low positive correlations between the two types of measures, the psychological tests tend to measure the "ideal" value patterns while this test is oriented towards prediction of specific classes of behavior, in other words "real" behavior patterns. Even on such relatively specific areas as the Edwards Personal Preference Schedule (EPPS), the McClelland measure has proven

Table 1

INDIVIDUAL ITEM-TO-TOTAL SCORE CORRELATION COEFFICIENTS

N = 248

Scoring Categories	Story #1 (Supervisor)	#2 (Student)	#3 (Man in City)	#4 (Speaker)	#5 (Money)	Category Total
Achievement	.28	.40	.42	.47	.34	
Need	.21	.51	.69	.95	.14	
Instrumental Activity	.24	.34	.60	.73	.08	
Anticipatory Goal States	.35	.48	.41	.45	1.00	
Obstacles or Blocks	.55	.57	.08	.08	.08	
Nurturant Press	.23	.95	.	.08	.78	
Affective States	.78	.69	.41	.55	.57	
Achievement Thema	.50	.59	.69	.86	.51	
Total Score Per Story						

Table II

INDIVIDUAL CATEGORY-TO-TOTAL and PICTURE-TO-TOTAL SCORE CORRELATIONS

N = 248

Scoring Categories	Story #1 (Supervisor)	#2 (Student)	#3 (Man in City)	#4 (Speaker)	#5 (Money)	Category Total
Achievement						.92
Need						.75
Instrumental Activity						.89
Anticipatory Goal States						.39
Obstacles or Blocks						.49
Nurturant Press						.40
Affective States						.73
Achievement Thema						.93
Total Score Per Story	.56	.71	.63	.61	.60	

superior in predicting socioeconomic levels of achievement related behavior (McClelland, 1958, p. 25; deCharms et al, 1955 and Marlowe, 1959). The ultimate predictive validity can only be established through actually following up of the former students , and comparing the relative utility of the various measures employed in the study.

I have hypothesized that a need-achievement orientation is a prerequisite for "success" in an urban industrial society, and also for more traditional cultures to be able to hold their own in a larger dominant society. One index of "success" is the cultures' viability in a given environment. This is measured in terms of economic, social, and psychological indicies.

3) Construct Validity

Construct validity is most appropriately used to assess dimensions which cannot be mapped into a single index or measure. This investigator has proceeded by hypothesizing certain outcomes, which if observed as predicted, would tend to support the construct upon which the test is based. This also becomes a validation of the theory as well as the test.

There are many types of construct validity. McClellands' establishment of empirical entities and subsequent confirmation of them by many researchers is one type. A minimal level of validity is assured through the fact that such a high consensus of agreement can be obtained through the use of the scoring system itself.

Construct validity is critical when the reseacher accepts no existing measure of the construct as definitive, and when the test is of such a global nature that no single criterion would be adequate. Virtually all measures of motivational factors rely principally upon construct validity rather than the more absolute criteria that are suggested here.

Pattern analysis is another method of approahing the issue of construct validity. If it is used in conjunction with a meaningful cross-section of variables it may provide significant insights into the dynamics of the motivational syndrome, and in addition provides a means of articulation with behavioral science theories. The following diagram systematically presents the theoretical determinants of n-Achievement performance levels:

Societal and Individual

A. Sociocultural Variables	B. Personality Variables	C. Individual and Structural Interaction	D. Behavioral Performance
Antecedent Conditions Produce	Persons with certain characteristics, who interact	with certain response patterns to situational demands, producing	Consequent actions, achievement or other behavior

Psycho-Social Outline of Behavioral Sequence

Heredity Family Background Education Culture values	Abilities Personality Structures Self efficacy	Occupational skills required Organizational norms Access to appropriate opportunity structure	Achievement performance Wage level Upward Mobility: Academic career
S.E.S.	Achievement syndrome	Perceptual and cognitive integration	Resultant S.E.S. incremented or a descending spiral of alienation, unemployment, dependency, fatalism and social problem states

Correspondence to Basic Hypothesis

Background Variables: Family Social Education School type Academic measures Grade point average	Students varying in values, aspirations, experience, n-Achievement	Experientially reflected in simulated life situations (n-Achievement test) to predict specific	Behavioral Patterns: N-Achievement College Occupation Income S.E.S. Urban viability Non Achievement Less college, jobs, income, S.E.S.

Apart from the validation study, three behavioral science models will be employed to examine the systemic relationships between the above variables: (1) A Decision Model, (2) A Reference Group Assimilation Model and (3) A Mental Health Model.

Previous n-achievement studies have demonstrated relationships such as the following: 1) "A tendency to set moderate goals and to take calculated risks" (McClelland 1964,p.26). 2) He likes to "take personal responsibility for finding solutions to problems" (Ibid p.27). 3) In addition to a strong concern for achievement he manifests an equally vital need to know how well he is doing (Ibid p. 27). 4) He tends to work harder at demanding tasks; and 5) to learn faster (McClelland 1953), even when I.Q. is partialed out (Ricciuti and Sadacca 1955). Performance is best when the incentive is the subjects' own recognition of achievement than when it is of an external nature, such as money (Atkinson and Reitman 1956 p.366) or time off from work (French 1955,p.236). 7) He tends to be more resistant to social pressures (McClelland and Atkinson 1953) and to prefer experts over friends as work partners (French 1956,p.99). 8) N-Achievers are more active in their communities; and 9) prefer accupations with greater individual latitude for success (Atkinson 1958). 10) Finally, he tends to come from families in which there has been stress on early self-reliance and mastery (McClelland 1953).

This research posits the following relationships with respect to criterion related validity:

A. Academic relations and concurrent validity

1. Academic achievement tests; The n-Achievement measure correlates significantly with three subscales of the SRA Achievement tests. They are arithmetic (at the .05 level) and more highly with the social studies and science tests (both at the .005 level). The correlation with the California Reading Test falls just short of the .05 level so is only suggestive. It was also found that achievement tests tend to correlate much more highly with the GPA which is to be expected.

2. Teacher ratings for 158 Navajo students were made by their homeroom teachers along the following nine dimensions. The instructions were to consider each student with respect to other high school seniors he has taught. Place a number in the corresponding space for each trait: 1 = lowest quartile, 2 = second quartile, 3 = third quartile, 4 = top quartile.

Definition of traits:	Need-Achievement Correlation
a) Self-Motivated - Accepts responsibility, works for own goals, likes knowledge for its own sake, reads beyond assignments, can work independently, initiates activities.	.05 m = 2.31
b) Competitive - Prefers challenges, works harder at difficult tasks, prefers risk to security and prefers tasks requiring skill rather than chance, believes rewards should be based on merit and achievement, prefers competitive extracurricular activities.	n.s. m = 2.2
c) Persistent - Studies, works hard to master difficult tasks, sticks with a task until it is completed, will turn down socializing to work.	.05 m = 2.19
d) Concern with Performance - Attentive in class, worries about grades and exams, wants to know outcome of tests, has a sense of satisfaction or accomplishment after completing a difficult task.	.025 m = 2.3
e) Plans Ahead - Has talked with counsellors about future plans, has clear postgraduation plans, organizes time well, prepares ahead for classes.	.005 m = 2.4
f) Pragmatic - Flexible, realistic, accepts help when needed, doesn't pursue unreasonable personal goals.	.0005 m = 1.0
Taking everything into account that you know about this senior, what would you say his chances for success would be for the following items?	
a) graduation from college	.01 m = 2.2
b) completion of trade school	.005 m = 2.6
c) obtaining an above average job	.005 m = 2.0
Total Test Index	.0005

The one exception was the "competitive" rating which is not considered a Navajo trait in the individualistic Anglo sense, but which did correlate very significantly with G.P.A. (at .0005 level) which suggests a not overly subtle culture bias on the part of the teachers.

(m = mean)

3. The students' Grade Point Average proved to be a low but significant correlate with n-Achievement (at .05 level). However several major differences emerged from the factor analysis of 104 variables studied. First G.P.A. correlated very highly with the I.Q. measures (.0005 level) while n-Achievement did not, which further confirms the socially acquired nature of n-Achievement. Additional differentiating occurs as follows: G.P.A. correlates with off-reservation exposure (.05) while n-Achievement does not, suggesting that mere exposure is insufficient of itself to nurture the n-Achievement motive. G.P.A. correlated negatively with the total disjunction score, which means little or no perceived disjunction versus the reverse for n-Achievement. This suggests a more realistic pragmatism for n-Achievement and possibly a striving to overcome perceived deprivations may contribute to the nurture and/or sustenance of the achievement motive. G.P.A. correlated positively with the internalization (SRI) measure, at .01 level, which indicates a difference between an attitude measure and a measure based on behavioral analysis. Finally a cluster of attitudes associated with an assimilation syndrome correlated strongly with G.P.A. but not n-Achievement which confirms that n-Achievement analysis can be done in a nearly value-free context by focusing on the cognitive style of striving and not merely the specific goal or value. The assimilationists desired to attend predominately Anglo schools, and desired not to become literate in their native language, nor for their children to speak it, nor to retain more than a few of their tribal customs. In the future employment sphere, both G.P.A. and n-Achievement correlated with the expressed intent to obtain off-reservation jobs. This also reflects the scarcity of reservation employment opportunities.

4. Need-Achievement.

a) Distributions by school type and ethnicity.

The distribution of n-Achievement within school types was as expected (see Table III). It was highest in mission schools, medium in public schools and lowest in BIA schools. In general boarding schools seemed somewhat lower than day school students but this distinction seems largely an artifact of the above relationship. This relationship was born out for all ethnic groups. However, a more definitive comparision is problematic due to the asymmetric nature of the sample of schools. Naturally several factors need to be taken into account: S.E.S., the selective nature of the different school populations, and the types of education offered in the respective schools (segregated, integrated, etc.).

The S.E.S. factor was not testable since virtually all of the sample was lower to middle class (as defined by income and parental occupation types). The school types (mission, public and BIA) all showed a significant range of n-Achievement means. However, with respect to Navajo students (where data is most adequate) all six mission schools out-ranked the other 18 public and BIA schools with but one exception. While within the 18 public and BIA schools, 75% of both types ranked above the combined mean. The most obvious explanation seems to reflect the degree of school integration (Anglo and Indian) but this is not entirely the case. It is much less important for the Anglo students than for the Indian. However, both findings are in concordance with Coleman's findings reported in Equality of Educational Opportunity (1966, p. 21).

The Anglo sample appears to have done the poorest, but examination of the data suggests that because of differential dropout rates, the Anglos are a more general sample while the Indian twelth graders are a more select group insofar as approximately 50% of the general population has dropped out. The same holds true for n-Achievement comparisons of Anglo versus Navajo college students (Reboussin, R. and J. Goldstein, 1966, p. 740).

Table IV indicates the percentage of students who have attended each type of school in the twelth grade sample (n = 684) in Table V indicates the percentage of students reporting school type attended throughout his educational career (total Indian sample). The parentheses indicate average number of years in attendance by each school type group respectively.

TABLE III

MEAN N-ACHIEVEMENT SCORES FOR 24 SCHOOLS BY ETHNIC GROUPS

(Sample Size in Parenthesis)

School Code Number	Anglos	Navajos	Sioux	Pueblo	Spanish	Total N	School Mean
MISSION (BOARDING)							
05		9.6 (5)		14.0 (5)		10	11.8
15	7.0 (1)	7.4(10)				11	7.36
16	16.0 (1)	7.5 (5)		4.0 (1)	2.5 (2)	9	6.44
21	3.0 (2)		5.15(13)			15	4.93
23	5.0 (2)		6.25 (8)			10	6.0
MISSION (DAY)							
14		6.67 (3)				3	6.67
Average	6.5 (6)	8.6 (23)	5.6 (21)	12.33(6)	2.5 (2)	58	8.0
PUBLIC (DAY)							
19	3.0 (1)	3.0 (11)		9.0 (2)		14	4.57
04	6.0 (5)	4.33(12)				17	4.82
08	5.83(6)	4.54(37)		8.5 (4)		47	5.0
12	4.0 (6)	7.71(21)		13.0 (1)		28	7.11
18	5.5 (4)	5.45(22)		6.78(18)		44	6.6
06	3.0 (5)	6.57 (7)				12	5.08
24	4.94(16)		5.2 (15)			31	5.06
20	3.63(46)			3.5 (2)	5.47(17)	65	4.11
10		3.25 (4)				4	3.25
Average	4.33(89)	5.17(114)	5.2 (15)	7.15(27)	5.47(17)	262	5.09
PUBLIC BORDERTOWN (Students Live in B.I.A. Dorms) *							
11		6.63(11)				11	6.63
03		5.92(13)				13	5.92
17		5.4 (5)				5	5.4
13		4.9 (10)				10	4.9
02		2.33(18)				18	2.33
Average		4.7 (57)				57	4.7
B.I.A. BOARDING SCHOOLS *							
22		5.93(15)				15	5.93
09		4.86(158)				158	4.86
01		4.81(32)		4.6 (5)		37	4.78
07		4.08(46)				46	4.08
Average		4.75(251)		4.6 (5)		256	4.75
TOTALS	4.84(95)	5.61(450)	5.44(31)	7.16(38)	5.1 (19)	633	5.21

* Indians only in this category

TABLE IV

School Type Attended at Time of Study

	Boarding	Day School
B.I.A.	41% (n = 256)	(No 12th Grade Day schools Exist in BIA)
Public	9% Bordertown (n = 57)	38% (n = 262)
Mission	12% (n = 55)	.6% (n = 3)
	Total n = 540	

TABLE V

School Types Attended Previously

	Boarding	Day School
B.I.A.	55% 8.6 years	20% .8 years
Public	22% 4.3 years	67% 7.8 years
Mission	15% 7.0 years	9% 3.2 years
	Total n = 540	

These tables indicate that most Indian students have attended several school types and that a continuity per se cannot account for differential achievement by school type. However, further analysis indicates the high n-Achievers individually manifest more continuity and are less mobile and less over-age than other Indians.

School type was found to be highly related to graduation from college by the Southwestern Educational Cooperative Laboratory study of Indian high school graduates (Bass, 1968). In fact, when one allows for sample size the mission high school graduates are approximately 40 times more likely to graduate from college than the B.I.A. graduates and approximately 7 times more likely than the public high school graduate (Ibid., p. 32).

B. General Aptitude Tests:

The General Aptitude Test Battery has been developed by the U.S. Employment Service and is widely used for employment selection and counseling throughout the country. It is routinely given to most Indian students in federal schools. N-Achievement correlates with the overall G.A.T.B. score (.05 level) and with the spatial relations subscore (.025 level) which presumably relates to the ability of visualization of objects and abstract relationships, and as such is not surprising that it correlates with a T.A.T. measure although very little is reported about this in the literature.

C. General I.Q. Tests:

The n-Achievement test did not correlate with the California Test of Mental Maturity (CTMM) while the G.P.A. meausre did at a very significant level (.0005). Future analysis of the CTMM subscales may provide greater insight into the specific nature of this most dramatic departure between the two most global student measures, G.P.A. and n-Achievement. However, the factor dimensions are demonstrably different and apparently independent.

D. General Self Efficacy Indices:

The three following measures (SRI, LCI, Planning Index) were derived from the TriEthnic study of deviant social behavior and were developed for usage with Indian, Spanish American and Anglo youth. They are discussed more extensively in a social learning context in _Society, Personality, and Deviant Behavior: A Study of a Tri-Ethnic Community_ by Richard Jessor, _et_. _al_.(1968) and are briefly described in Appendix E.

1. Social Reaction Inventory (SRI) is basically an attitudinal measure of the extent to which an individual feels that his own efforts can significantly affect the outcomes of major events in his life (self-efficacy) versus externalization , the belief that such events are beyond the individual's control (fatalism). The SRI measure correlates with G.P.A. and measures of success which presuppose long-range committments to this belief, i.e., higher education, professional school, etc. The measure correlated only with the scores

derived from the education amd employment pictures but not significantly with the total n-Achievement score. This suggests that the n-Achievement test taps broad but also different areas of achievement orientation, that Indian achievement goals are more temporally immediate and more social in nature, and finally that the test could be shortened where only a specific measure is desired.

2. Planning Index was composed of 12 items and did correlate with n-Achievement which suggests that although high internalization (SRI score) is not a corequisite of n-Achievement, Planning or the awareness of means to attain a goal is. A very interesting discovery was the fact that the Planning Index did not correlate with the G.P.A. The fact may indicate one substantial reason why G.P.A. generally diminished in predictive validity with respect to post-school performance and provides one reason why n-Achievement may be expected to increase in prediction of post-school behavior.

3. Life Chances Inventory (LCI) could readily provide the basis for an educators' handbook of the students' image of the future. Perhaps the best way to summarize this data is to present a brief profile of the students' aspirations and expectations.

Social learning theories such as Merton (1957) and Rotter (1954) predict a correlation between the image of the future and students' aspiration, and many related variables. The index itself consists of the individual's actual aspiration (vocational, educational, economic) which are then compared to his parents' aspiration for him, and also compared to his subjective expectation of aspirational attainment. The index compares the aspired goal with the perceived access to the vocational, educational or economic opportunity structure.

The scale's homogeneity or internal consistence as measured by the Kuder-Richardson formula produced a reliability coefficient of .56, indicating that the index can be considered as a single measure. Additional correlates of the index were peer ratings, absenteeism, tardiness, time perspective and planning index (r = .251 at .05 level), I.Q. and G.P.A., all of which are congruent with Rotter's theory that high post-school aspirations are related to predicted future achievement.

The parental expectation that the student should go to college was the highest single correlate (.0005 level) despite the fact that virtually none (below 8%) of the parents had completed college, and in view of the fact that the Indian college dropout rate is approximately 80% suggests that the aspirations alone cannot assure college success and that other parameters of familial support should be investigated.

Insofar as the three measures are deemed comparable in scaling, the area of greatest perceived disjunction is that of employment versus education and income. Even this may be greatly underestimated as many students did not revise their aspirations when confronted with a second choice situation, and many even raised their level of aspiration. This lack of realism seems to reflect a lack of experience and a psychological overcompensation. It does provide a certain amount of social recognition and sympathy regardless of unattainment if the goals are socially acceptable. This points to a greater educational need to realistically prepare high school students for the non-school world and not just to increment their aspirations.

A previous study of Navajos in Denver, Colorado showed that high achievement and high aspirations almost doubled the arrest rate of the low achievement group (176,000 versus low achievement scores with 97,000 per 100,000 man years) (Graves, 1969). The causal linkage being that both groups were relatively unsuccessful economically and this led to heavier drinking which in turn was reflected in high arrest rates. (Over 98% of the arrests were drinking-related violations).

In contrast, Anglo high school graduates may be somewhat idealistic and naive, but they nevertheless have grown up in a society which has taught them many survival lessons. Perhaps the strongest case against B.I.A. boarding schools could be made insofar as the students are de facto segregated from both cultures within a government compound. They are provided the least knowledge and experience which could prepare them to assume a viable role in either society.

LCI Aspirations:

Job Aspirations:

Aspirations are categorized by Edwards' Census Classification of Occupations.

	Low n-Achievers		High n-Achievers	
	Anglos	Indian	Indian	Anglos
1. Professional persons	42%	19%	24%	57%
2. Proprietors, managerial	22%	5%	7%	8%
3. Clerks	0%	3%	4%	10%
4. Skilled workers	18%	42%	42%	14%
5. Semi-skilled workers	16%	26%	23%	11%
6. Unskilled	2%	4%	22%	0%
7. Welfare, allotment	0%	0%	0%	0%
	(n=51)	(n=266)	(n=266)	(n=51)

The high n-Achievers group shows a consistently higher level of aspirations than the low n-Achiever groups within ethnic group comparison. However the low n-Achievement Anglo group was higher than expected for the professional and managerial categories.

Income Aspirations:

A relatively consistent picture emerges from the dichotomization of achievement groups when they are compared within ethnic groups. High n-Achievers aspire to earn approximately $2,000 per year more than low n-Achievers. While the Anglos' difference is the same, the starting base is $4,000 above that of the Indians'.

	Low n-Achievers		High n-Achievers	
	Anglos	Indian	Indian	Anglos
Average	$11,000	$7,000	$9,000	$13,000

Perceived Barriers:

The largest barrier cited was inadequate training (including lack of language skills, lack of education, insufficient knowledge, lack of skills, training, studies, grades, records) which comprised 66% of the total responses. Next in frequency were personal attitudes (attitudes, motivation, etc.) comprising 17%, then military 8%, financial 3% and no barriers 5%.

Overall chances of success:

	Low n-Achievers		High n-Achievers	
	Anglos	Indian	Indian	Anglos
Poor-Fair	30%	10%	9%	40%
Good-Excellent	70%	90%	91%	60%

This indicates that Indians feel much surer of their chances for success than non-Indians and low n-Achievers more than high n-Achievers. This is exactly the reverse of the situation which is encountered.

Structured comparisons between aspirations:

Column one presents the percentage of students who respond in the temporal context of "right away" versus "later on" or "not at all" for the five categories. This represents a percentage of the total sample (n=634). Column two presents the students' estimated chances of success as "pretty good" or "excellent" and these are presented as a percentage of the respective group responding in column one (hence not the total sample). Column three is the students' perception of his parents expectations for him in categories identical to the first column.

	Temporal "Right Away"		Chances of Success		Parental Expectation "Right Away"	
	Indian n=539	Anglo n=95	Indian	Anglo	Indian n=539	Anglo n=95
Go to city to get a job:						
High n-Achievement	26%	20%	81	60	21%	6%
Low n-Achievement	23%	4%	90	70	6%	0%
Business, trade school:						
High n-Achievement	45%	20%	66	16	50%	18%
Low n-Achievement	45%	16%	58	8	44%	10%
College (four years):						
High n-Achievement	36%	46%	9	30	53%	66%
Low n-Achievement	29%	54%	9	30	44%	76%
Go into Services:						
High n-Achievement	13%	14%			11%	6%
Low n-Achievement	20%	22%			4%	8%
Get job around home:						
High n-Achievement	6%	20%			35%	16%
Low n-Achievement	9%	10%			36%	14%

Most striking constrasts:

Indian preference for trade schools was cited by 90%, college by 65%, and getting a job by 49%, but only 15% qualified it as getting a job near home. The students perceived their parents' expectations as first, going to college, second, trade school, and third, getting a job around home, which appears more important than getting a job per se. The Indian students were much more optimistic about their chances of success than the situation would warrent. The Anglo students markedly prefer 1) college, 2) trade school, 3) military, and 4) jobs and in the same rank order as their parents.

Perceived barriers to college attendance:

The hig n-Achievement group, in general, perceived more barriers than the low n-Achievement group.

Educational barriers (lack of knowledge, insufficient education, poor education)	33%
Personal attributes (poor habits, don't make it, motivational)	19%
Other plans (marriage, service, vocational school, jobs)	16%
Financial reasons	22%
No barrier	6%
Miscellaneous	3%

(These data have not been analyzed by n-Achievement groups).

Social Background Profile:

Familistic-Individualistic: N-Achievers tended to come from more individualistic families but not at the .05 level of significance. This suggests that relative value-free criterion for this cross-cultural test has been approached, since n-Achievement in Anglo culture is predominantly value-related versus a strict definition of a generic cognitive style.

Exposure to Anglo Society

Non-Indian parents or relatives: If a student has nonIndian relatives, he is 50% more likely to be above the n-Achievement mean.

Rural versus urban: The urban sample was too small for meaningful comparison. The largest "urban" sample was Gallup, New Mexico, which had one of the lowest school means for n-Achievement, so clearly this factor cannot account for the difference observed.

Type of School Experience: Majority of Educational Exposure - 7 or more years:

	hi n-Ach	lo n-Ach
Schools with almost all Indian	52%	42%
School mixed	39%	43%
Schools mostly non-Indian	5%	6%
Inadequate data	4%	6%

n=520

The table indicates very limited exposure to integrated education.

Months living away from reservatians:	hi n-Ach	lo n-Ach
	45%	57%

Only 19% of total sample had lived away from the reservation nine or more months. However it was impossible to differentiate the quality of off-reservation exposure. Certainly migrant labor experience (most of sample) is different from urban experience.

Friendship Pattern:	hi n-Ach	lo n-Ach
Mostly Indians	93%	95%
Mostly Anglos	7%	5%

Friendship Preferences:	hi n-Ach	lo n-Ach
Mostly Indian	35%	34%
Mostly Anglos	64%	66%

Mass media exposure:	Never	Seldom	1-2/Wk	Daily
Reads newspapers	2%	18%	34%	43%
Reads magazines	1%	21%	50%	25%
T.V.	2%	24%	36%	36%
Reads books	1%	27%	36%	33%
Attends church	21%	28%	1-2 times 16% a month	Weekly 34%

No significant difference in n-Achievement was found for the total sample regarding mass media total score. A finer breakdown of the analysis has not yet been completed.

Societal Identification

	Mean	Variance	S.D.	N	Level of Significance
Type of school preferred	.975	.22	.476	120	(no sign.)
Friendship type preferred	.315	.217	.466	124	.025
Desires literacy in tribal language	.089	.082	.287	123	(no sign.)
Desires children gain literacy in tribal language	.198	.160	.40	121	.05
Desires to retain Indian customs	.573	.344	.587	124	(no sign.)
Desires to live off reservation	.829	.143	.378	123	.05
Total identification	2.38	1.18	1.08	116	(no sign.)

The higher the score, the higher the identification with the dominant society. Mere identification does not seem enough to assure any kind of success in urban Anglo society. There must also be realistic exposure and access to some reasonable opportunity structure, otherwise severe disjunction will predictably arise. High identification itself correlates with the high total disjunction index (at .05 level).

Social Problems Index: This score is derived from the n-Achievement protocols and consists of the frequency of themes which revolve around social problem behavior, for example murder, theft, robbery, drinking problems, etc. On this index the highest score possible is five (one point for each picture). The social problem scores correlate with (a) a self image as "hard" (semantic differential item). (b) Whites as "good looking" (semantic differential item also correlating with high identification). (c) Exposure to Anglos in school. (d) A low correlation (.05 level) with the SRA reading scores (which would seem to differentiate them somewhat from the major school problems type.

On the negative side, the social problems index correlates very negatively with n-Achievement (at .0005), which should bear further investigation and may in part result from the fact that very few social problem themes had any achievement component and hence were almost totally mutually exclusive. The social problem index correlates with the planning index - .01, and shows no correlation with the measure of self control (SRI internalization). Further examination of school records would provide direct behavioral confirmation of this measure. However where high n-Achievers are not able to achieve one would predict very high frustration and drinking. Thus a high correlation of Indian arrests and n-Achievement was found by Graves, 1969, and a study of 942 Indians in Chicago found only one significant difference between high school graduates and non-graduates. The graduates drank more. This would tend to confirm the frustration hypothesis.

Self Concept: Generally speaking, the Indian students have lower self-concepts on most of the semantic differential scales, especially the "sad-happy," ugly-good looking," "poor-rich," "dumb-smart," "dirty-clean," and "unsuccessful-successful" scales. An interpretive study of this data is completed but its relationship to n-Achievement motivation hasn't been established beyond this overall level.

III. SUMMARY

A cross-cultural test measuring n-Achievement motivation was developed and administered to 634 American Indian, Spanish-American and Anglo high school seniors, attending 24 schools, including Federal, Public and Private Boarding and Day types. N-Achievement was related to the following types of measures: Academic, Aptitude, Intelligence, and Self-Efficacy.

A factor analysis of 104 test items yielded three factor dimensions. The first delineated a broad achievement, aspiration, teacher rating and aptitude factor, a second a more specific academic achievement and clustering of specific aptitudes; and a third factor is principally defined by a generally positive clustering of positive semantic differential measures. The validation of the test is judged as sufficient to warrant a follow-up study for the comparative purpose of establishing the most absolute validity possible, for both academic and nonacademic predictor variables.

IV. RECOMMENDATIONS

While any recommendations prior to the completion of the longitudinal follow-up would be speculative at the present time, there is little doubt that the n-Achievement test taps a global motivational factor that is demonstrably related to both standard achievement measures and at the same time appears more relevant to broader behavioral criteria in post-school life. Now that the general areas of related behavior have been roughly mapped, the experimental phase can begin in which finer controls are utilized to tease out the dynamics of genesis and development of the n-Achievement motive. Specifically:

(1) A longitudinal follow-up study to establish a baseline measure of the effectiveness of education via absolute criteria; employment records, continued education and personal satisfaction. It is becoming increasingly apparent that while significant increases have been made in the number of Indians graduating from high school and going to college, it is lagging far behind the increased aspiration levels of Indian youth and the resulting frustration has increased tenfold.

(2) Contingent upon the findings of the longitudinal study - an exploratory study should be launched to delineate the educational dynamics of acquisition of Need-Achievement Motivation for Indian youth and to direct the families and schools as to its nurturance.

(3) Methodological Contributions to Behavioral Science: Since the data were collected in such a fashion as to be able to test three theories of behavior explanation: (1) a Decision-making Model, (2) a Mental Health Model, and (3) a Reference Group Assimilation Model, an evaluation of each model's exploratory power would be in order.

(4) Finally, the data should be summarized in such a way that the 24 participating schools could make direct usage of the findings.

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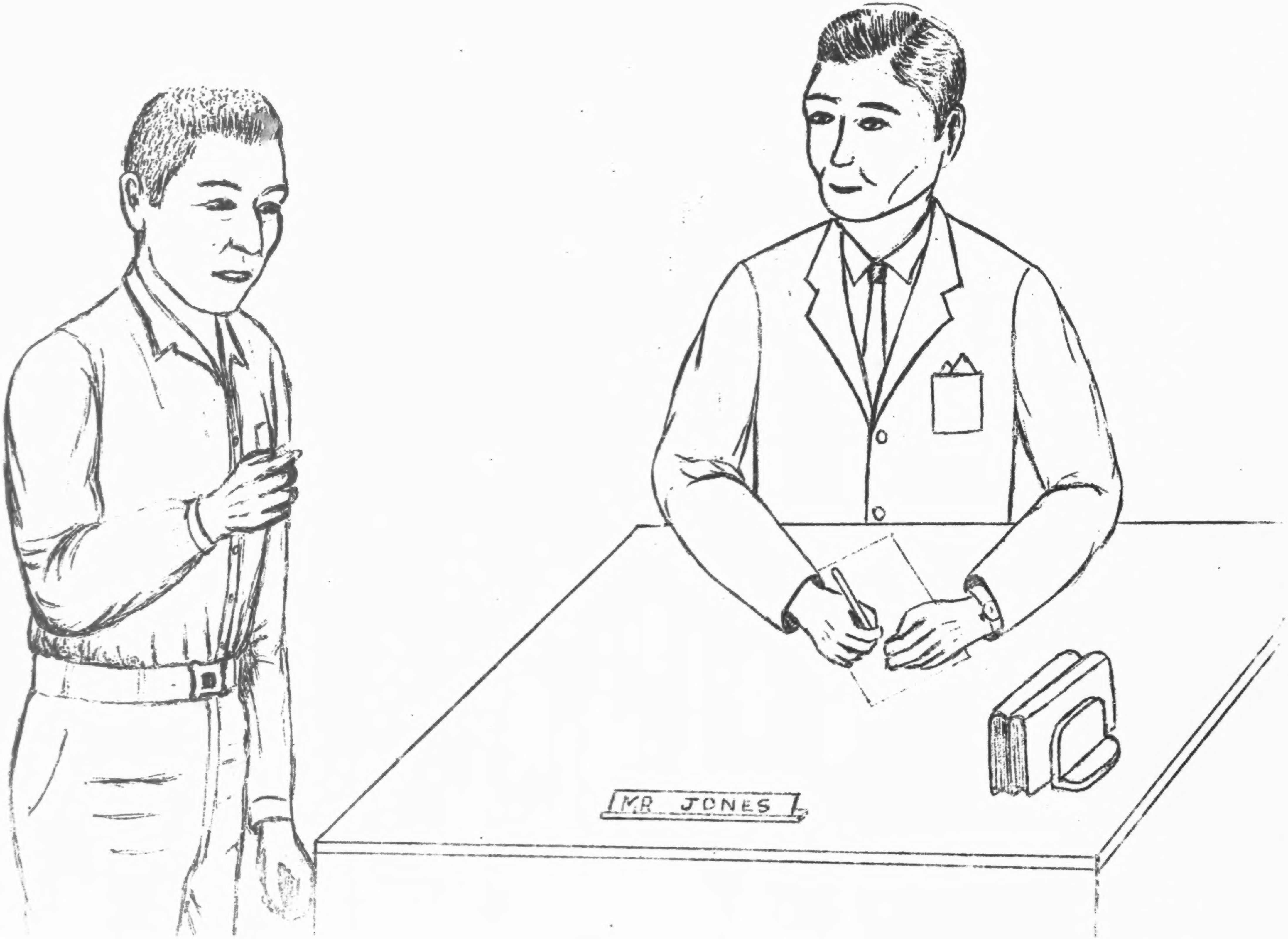
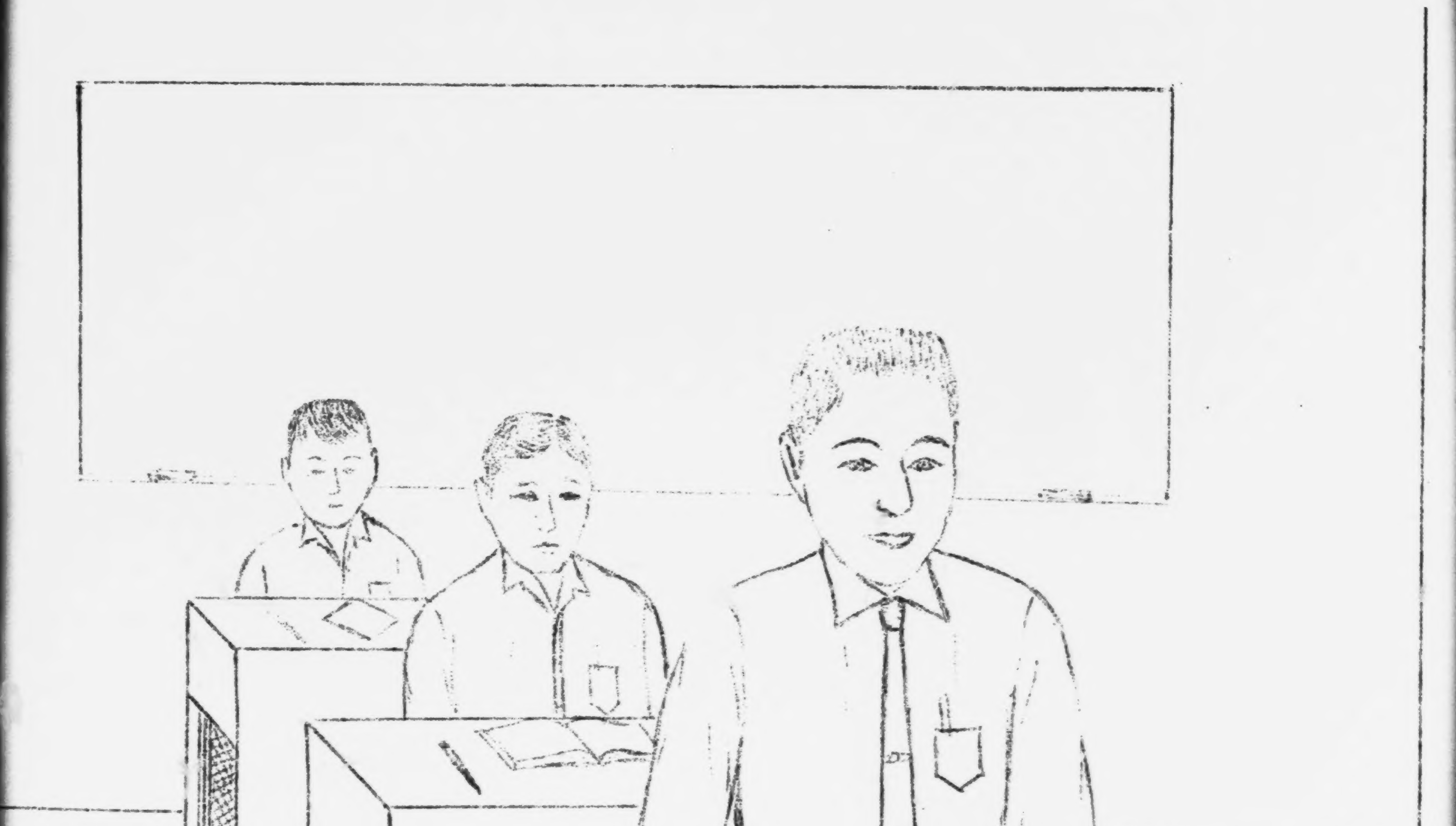
APPENDIX A

STIMULUS PICTURES

The following set of pictures are used with this manual. They are given in their order of presentation in the interview situation. The pictures were designed to elicit statements concerning the subjects' orientations towards: employment, education, urban life orientations, social leadership, and monetary utilities, respectively.


MR JONES



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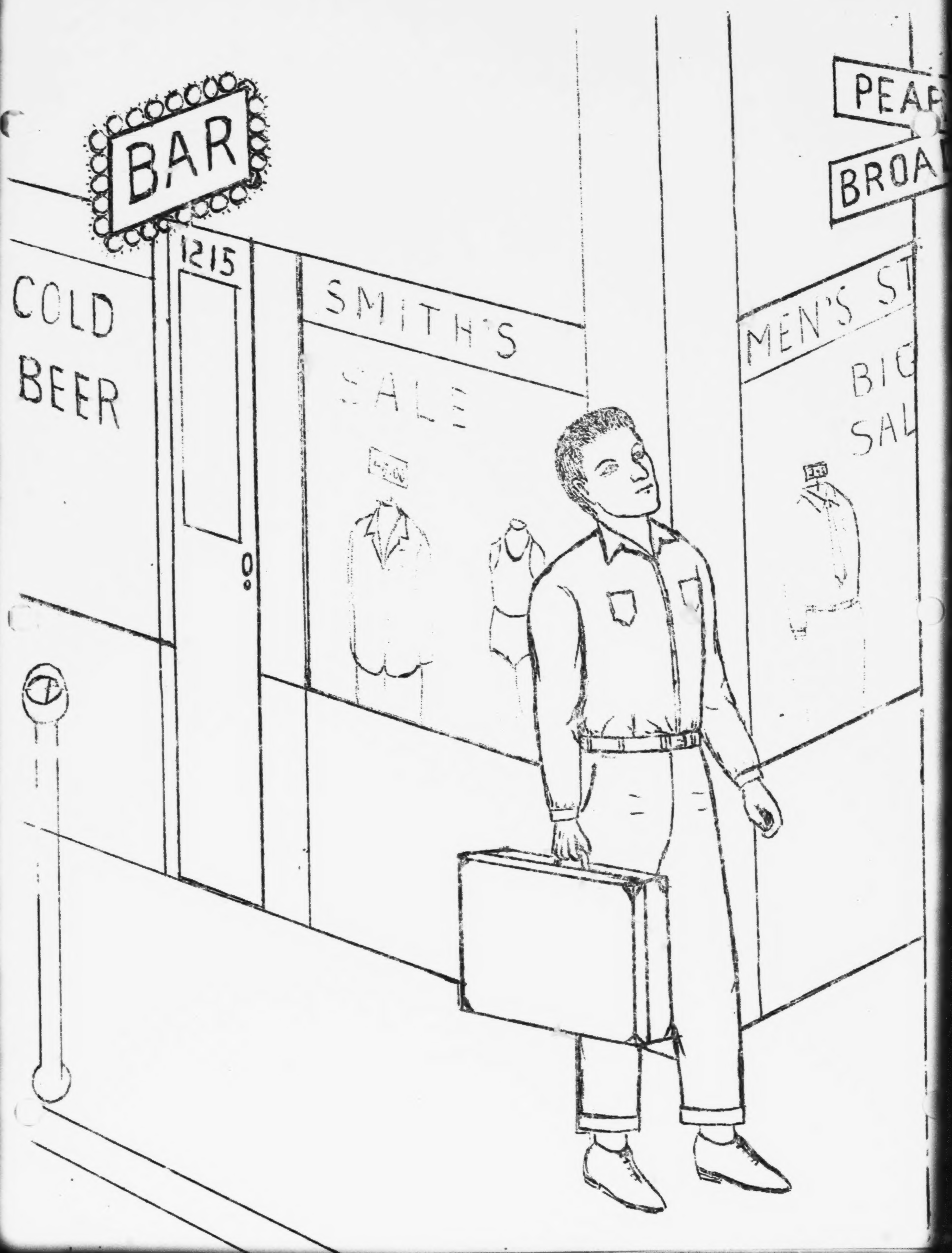
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MEN'S ST
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CHAIRMAN

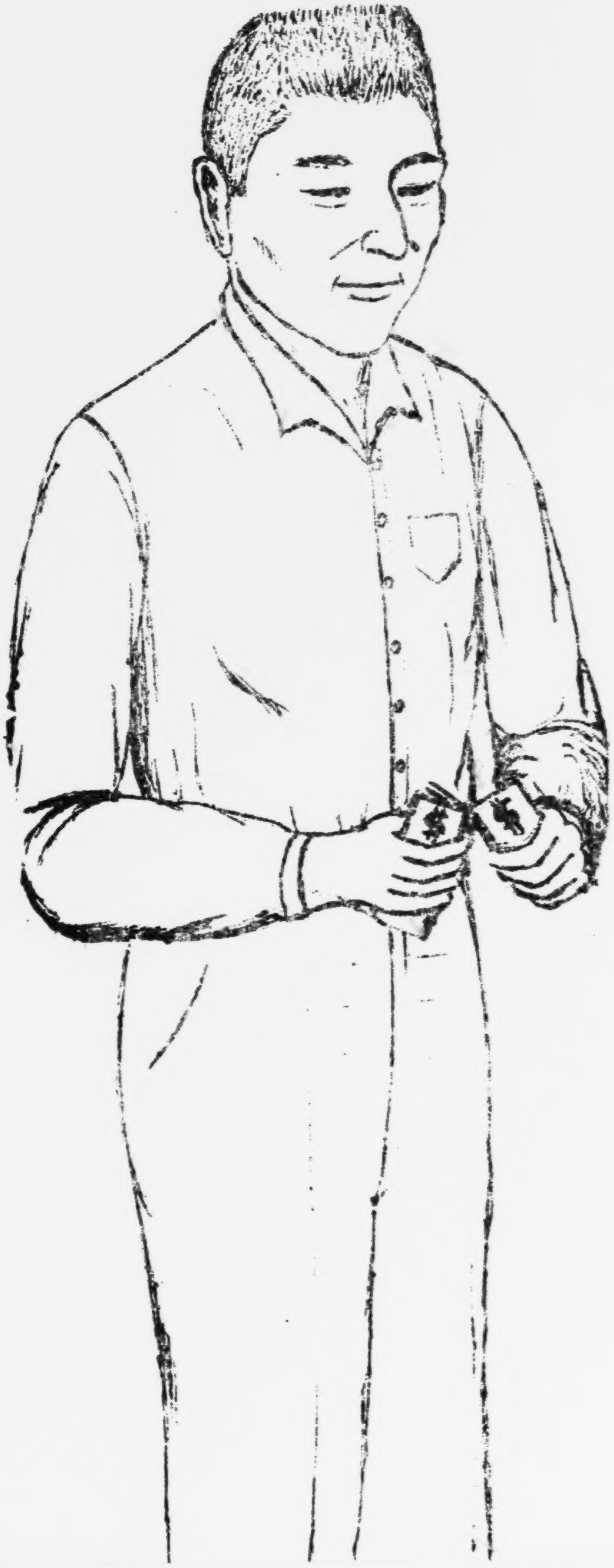

Table II

APPENDIX B

INDIVIDUAL CATEGORY-TO-TOTAL and PICTURE-TO-TOTAL SCORE CORRELATIONS

Scoring Categories	Story #1 (Supervisor)	#2 (Student)	#3 (Man in City)	#4 (Speaker)	#5 (Money)	Category Total
Achievement						
Need						
Instrumental Activity						
Anticipatory Goal States						
Obstacles or Blocks						
Nurturant Press						
Affective States						
Achievement Thema						
Total Score Per Story						

APPENDIX C

SELF TEST FOR SCORERS OF N-ACHIEVEMENT

(After Smith and Feld in Atkinson 1958:685-694)

Read the manual on scoring thoroughly and then answer the following questions concerning the various types of imagery:

Achievement Imagery (Complete the following)

What are the three general criteria for scoring Achievement Imagery?

(1) Competition with a ________

(2) A unique ________

(3) ________________________________achievement involvement.

Give one example of each:

(1)

(2)

(3)

Need

Give the basic criteria for this category:

If a person, other than central character in the story, defines an achievement goal for the central character, can this be scored as indicative of need?

_____

What is the relationship of Instrumental Activity and the scoring of Need?

____

Instrumental Activity

Give the criteria for this category:

How is Instrumental Activity different from Achievement Imagery?

Anticipatory Goal States

When is goal anticipation scored?

Are statements in which the Anticipatory Goal State is doubtful or uncertain in outcome scored?

What is the distinction between covert (or mental) activity which is scored Anticipatory Goal State and that which is scored for Instrumental Activity?

Obstacles or Blocks

Describe an Obstacle or Block:

Nurturant Press

What is meant by Nurturant Press?

Affective States

What are three criteria for scoring Affective States:

(1)

(2)

(3)

What is the distinction between scoring of Anticipatory Goal States and Affective States?

What is the difference between the scoring of Instrumental Activity and that of Affective States?

Thema

When is Thema scored?

Can Thema be scored if nothing beyond Achievement Imagery is scored?

Guide to Answers for Self Test Section

Achievement Imagery

The three general criteria for scoring Achievement Imagery are:

(1) Competition with some explicit standard of excellence, as "becoming the best doctor," or a statement of some personal standard of excellence "he wants to get a better job than his father had."

(2) Unique accomplishment, as an invention or art creation.

(3) Long-term future involvement, as in studying for some profession, or saving for a house.

Need

The basic criterion is simply that someone in the story states a desire to attain an achievement goal, or states a desire to pursue some activity instrumental to attainment of the achievement goal. "He wants to become an astronaut" or "He hopes to succeed."

If a person, other than the central character in the story defines an achievement goal for the central character, it is not scored for Need. However, if for example a teacher tells a student to "study hard so that he will get a good job and amount to something," it would be scored as Nurturant Press.

What is the relationship of Instrumental Activity to that of Need? Need is not inferred from Instrumental Activity.

Instrumental Activity

Give the criteria for this category. Instrumental Activity is defined by some action which is directed toward eventual goal attainment. Virtually any manifestation of purposive, planned, or foresightful behavior will qualify so long as it is oriented towards attainment of the achievement goal. While Instrumental Activity is auxiliary to the Achievement Goal it must be distinguishable from the Achievement Goal. In a sense Achievement Goals always imply Instrumental Activity; however the nature of the activity must be specified before it can be scored.

Anticipatory Goal States

When is Goal Anticipation scored? Whenever the main character indicates a clear anticipation of some goal state, be it success, failure or doubt. Are statements scored for Anticipatory Goal States in which the outcome is doubtful or uncertain: Yes, the important thing is that some form of anticipatory outcome is expressed, i.e., "He is wondering what it will be like if he wins" is quite adequate for scoring Anticipatory Goal State.

What is the distinction between covert (or mental) activity which is scored Anticipatory Goal State and that which is scored Instrumental Activity? Simply this: an action is Instrumental if it concerns how to attain the goal, and it is an Anticipatory Goal State when it ponders the result or completion of the goal activity.

Obstacles or Blocks

Describe an Obstacle or Block. An Obstacle simply indicates a barrier between the person and the goal, e.g., some environmental barrier, or some personal factor such as previous failure, lack of confidence, conflict or indecision.

Nurturant Press

What is meant by Nurturant Press? This refers to any aid, sympathy, or encouragement which is rendered to the central character in the story.

Affective States

What are the three criteria for scoring Affective States?

(1) Active mastery or enjoyment of achievement goal, "He became the best artist and was very happy," or negative affect, "After he failed he became a drunken bum."

(2) A statement of definite objective benefit resulting from the outcome, as "The tribe was proud of him," or where absolute concomitants of failure, as "He became a drunken bum."

(3) When Achievement Need is manifest, and success or failure in attainment of the goal is clearly expressed, an affective state is inferred.

What is the distinction between Anticipatory Goal State and Affective States? Anticipatory Goal States are oriented towards future goal outcomes, while Affective States describe the emotional response to the actual outcome.

Thema

When is Thema scored? Only when it's the dominant plot, or if it is the only imagery within a response, granting that Achievement Imagery has been scored. Can Thema be scored if no other subcategories have been scored? Certainly, as in the above instance.

After completing the above self-test, practice scoring the sample protocols collected from high school students which are contained in Appendix D.

APPENDIX D

PRACTICE PROTOCOLS

Introduction

The following practice protocols have been selected from several hundred collected from male adult Navajo Indians. The initial number indicates the picture used, as described above and illustrated in Appendix A. It is followed by the subject's identification number, given in parentheses. The lower case letters are corresponding responses to the following probes used with each picture:

a) What is happening in the picture?

b) What happened before this picture?

c) What is the young man thinking or wanting?

d) What will happen next?

e) How will the story end?

Refer to the manual freely when scoring. Then compare your scores with that of the judges contained with interpretations at the end of the Appendix. Excellent additional practice in the technique (although using different pictures) is provided by Smith and Feld in Atkinson 1958:685-735, in which two hundred and eighty stories have been scored by experts, along with additional commentary.

Practice Session Sample Protocols

(refer to end of Appendix for interpretation)

Picture # 1 (105) Employment scene

a) "This guy, I guess, he's ask for more job I guess, some kind of another job. Try to come up to his boss you know, or just like give him another raise or something like that.

b) Well, right now I guess he's, he wants, he was getting less money I guess, and he asking for more money.

c) I think he might get more money.

d) Well, I think his boss kinda agree with him, I guess. He's kinda smiling looking at him you know.

e) Well, I think they might, all right with him, the way the picture seems."

Picture # 1 (006)

a) "Seems to me like this man's talking to the man about why he's late or why he don't come to work on time or something.

b) Well, he might get late, 2, 3 times.

c) Well, he might be getting late at night when he's going home and he sleep late in the morning, so he don't have time to get cleaned up and get to work.

d) Well, he'll probably tell him he give him half a chance, one more chance, or he gets booted off. That's what happened.

e) Well, he might get fired, if it does happen again."

Picture # 1 (110)

a) "...Probably he's asking for permission or something. (?) To leave for ... probably reservation.

b) Well, he might have a sick mother or somebody in hospital, sick, or something.

c) Probably if he was, if they only let him leave he'll be all right.

d) OK. What do you think will happen next? (?) Probably go down there.

e) I don't know. (?) Well after, if his family or people who sick, probably just, just went down there to see they leavin there.

Picture # 2 (010) School Scene

a) "First he's reading, and he's thinking about the studies.

b) Before he didn't know about what he's reading.

c) Well, trying to study hard, then some time think.

d) Probably they'll be proud that he studied and enjoyed it.

e) Good thing he read about it and did it."

Picture # 2 (085)

a) Well it looks like they're reading.

b) Before they were told to be reading a book.

c) Well, maybe he thinks that he could read and do, and answer the story to the teacher, first read.

d) Next they might answer to his assignment to teacher.

e) By returning, by returning their assignments back to his teacher I guess."

Picture # 2 (800)

a) "He's studying hard, math.

b) How he flunked the last test.

c) Teacher is explaining the test.

d) He'll try to study harder and do much better on next test.

e) He'll be able to understand the problems and do OK."

Picture # 2 (055)

a) "This might be reading or something you know, or else it might be preparation for a test, like a test on certain notice . . . he seems to be trying, trying to put something in his head that he would remember for it, coming test . . . or if he's going to make it.

b) Probably, he might have had one bad test, something like this, and you know might not have been so good. That serious look on his face. (?) He might not have done as well as he should have, and he probably thinking this time he'd do much better.

c) He's probably - he might be thinking about trying to improve all along on his school work, if he's not been doing so good.

d) Well with the determination, the look on his face, he would come out, you know, he would study the results of the other test - results would be much better then than he had before.

e) Probably next time he's prepared for it - the test - he won't have such a serious look on his face. Probably make preparation much earlier than at the time here as he's doing right in the classroom."

Picture # 3 (479) Man in City Scene

a) "This man has never been in so big a city before; he feels lost.

b) He been lookin all day for a friend who can help him get a good job.

c) He's thinking he's going to find Charley Begay.

d) Charley gonna help him find a job.

e) He work hard and buy a pickup and sometime return to his home glad he came."

Picture # 4 (020) Speaker

a) "...Maybe it's election time and give a good speech for the chairman there. And maybe the chairman's gonna give a speech to the people that are sitting there.

b) I don't know. People come to listen to it.

c) Maybe he like to be chairman.

d) If he stays at it hard enough probably will be chairman.

e) Well, maybe he won't get to be chairman. (?) Maybe he won't. Maybe he's trying to work his way up there, if he works hard enough he'll probably become chairman. Then he'll be sitting there where the chairman's at. Then he'll be what he always wanted, or he got what he desired."

Picture # 4 (102)

a) "Look like they having a meeting.

b) Probably something there, something wrong, probably something happened. Probably this guy's hollering about a job. (?) Probably now work and they make for a meeting.

c) I guess he wants, he wish he had all these guys on the job.

d) Well, they probably try and get them all jobs...

e) Everybody gets a job, and be good."

Picture # 5 (110) Money

a) "Probably got paid.

b) Probably save something, or got pay from the work.

c) He might get what he wants or just save 'em.

d) Might be different then, whether he save it or spend it. (?) He might just spend it, or half. (?) Be better he save.

e) He might pay his bill or put it in the bank."

Picture # 5 (068)

a) "Guy probably got his check, get paid.

b) Guess he was working hard.

c) Get a better job than he has.

d) He probably get a job, better.

e) He'll be a lot happier."

Picture # 5 (100)

a) "Well, this man, looks like he's real happy, counting his money, probably get himself good education and have a good job, making good money, think about making himself good living, probably get good car, good house.

b) This must be the guy asking for a job, in the first picture.

c) Probably want to put his money in the bank, saving his money.

d) Well, if he start saving his money, he gonna buy good house, and gonna buy himself good things, make himself his own living.

e) I don't know; that's all I guess."

Scoring Analysis for Practice Protocols

Picture # 1 (105)

The first response's manifest concern for "more job" and "another raise" present sufficient grounds to score Achievement Imagery. The statement in b, that "he wants" and is "asking for more money" is scored for Need. Response c indicates Anticipatory Goal State which is one of doubt, "He might get more money," while applying for a job is clear Instrumental Activity. Since no other plot contained, Thema is naturally scored. Total score is 5.

Picture # 1 (006)

Here the criteria for Achievement Imagery cannot be explicitly met, although the context is a work situation. Score is 0.

Picture # 1 (110)

No Achievement Imagery, hence scored 0.

Picture # 2 (010)

Response c establishes the Achievement Imagery "Trying to study hard;" it also illustrates Need "trying to." Response b represents a block, while a is clear Instrumental Activity. Once Achievement Imagery has been established, had the action been remote in the past and not an ongoing contribution to the achievement sequence, it would not have been scored Instrumental Activity. Response d is somewhat indirect but a clear inference can be made that it is supportive: "they be proud that he studied and enjoyed it." "He learned something" would permit the inference of a satisfactory goal outcome when Need is present, however response e provides even a clearly affective evaluation. "Good thing he read about it and did it," score for Affective State. Thema is clear. Total score is 6.

Picture # 2 (085)

"Reading" per se is too nonspecific to meet achievement criteria, the subsequent responses provide a fairly clear behavioral sequence but one which would be termed task-oriented; hence score zero.

Picture # 2 (800)

Here there is clear evidence of affective arousal based upon an achievement situation (academic standards and past failure) hence Achievement Imagery. That he flunked the test constitutes a Block, while "He'll study harder" indicated Instrumental Activity. Anticipatory Goal State is present: "He'll do much better on the next test" as is Affective State: "He'll be able to understand the problems and do OK." Thema obvious. Total score is 6.

Picture # 2 (055)

An academic standard is clear, the test, and becomes an achievement goal for the subject through his affective manifestations of a) "trying," b) concern, "not as well as he should have" and c) "trying to improve." "Studying the results of the prior test" is Instrumental Activity, while "results would be much better" indicates Anticipatory Goal State. A Block is indicated by "probably had one bad test." Thema is clear, total score 5.

Picture # 3 (479)

Statement b, "to find a good job" indicates Achievement Imagery. Statement a qualifies as a block, while d indicates Nurturant Press. E indicates affective goal state, and overall concern with the job sequence qualifies for thema; total score is 5.

Picture # 4 (020)

Clear Achievement Imagery. Need indicated by "like to be chairman." Instrumental Activity is seen as contingent upon the work "if he works hard enough he'll become chairman." "Maybe he won't be chairman" is a response of the storyteller external to the story so is not scored for Anticipatory Goal State. "Then he'll be what he always wanted" indicates positive Affective State. However several themes are apparent and hence no score for Thema. Total score is 4.

Picture # 4 (102)

This story is an example of a collective achievement goal: "he wish he had all these men on the job" as well as Need, "He want, he wish..." Instrumental Activity, "Well they probably try and get them all jobs" is scored. Affective State is indicated by "everyone gets a job, and be good" which is a generalized satisfaction. Thema is present, score 5.

Picture # 5 (110)

Saving money represents deferred gratification and long-term involvement hence Achievement Imagery. Goal Anticipation is positively valued, "be better he save;" however it is not explicitly anticipated and not scored. As spending is equally as prominent a theme, no Thema is scored, total 1.

Picture # 5 (068)

Here the Achievement Imagery isn't apparent until c, "Get a better job than he has." Anticipatory Goal State is indicated in "He probably get a job, better." Affect over the outcome is evident in e, "He'll be a lot happier" and since a, and b are subsidiary to the toal orientation, Thema is scored. Total score is 4.

Picture # 5 (100)

This one is rich in potential Achievement Imagery, including "good education, job, house, savings, and living." Need is clear from "He wants to...save." Saving is clearly instrumental to all of the above goals, Goal Anticipation is clearly favorable, as is Affective State and Thema. Total score is 6.

APPENDIX E

DESCRIPTION OF MAJOR VARIABLES AND INDICES DERIVED FROM QUESTIONNAIRE

The major variables being measured by this questionnaire, as specified in the three theoretical models guiding the research, are as follows;

1. Tendency to Delay Gratification
2. Success in School and on the Job
3. Feelings of Personal Control
4. Need-Achievement
5. Exposure to the Dominant Society
6. Access to Rewards of Dominant Society (both actual and perceived)
7. Identification with Dominant Society

1. Tendency to Delay Gratification. A Planning Index was developed from Part I, items 33-39. An index of willingness to delay gratification was developed from five buffer items included in the Social Reaction Inventory, Part II, pp. 13-17, items 3, 11, 15, 19 and 28.

2. Success in School. Criterion measures within this category are not derived from the questionnaire itself, but from teacher ratings, standardized achievement test scores, and grade point averages.

3. Feelings of Personal Control. The Social Reaction Inventory, Part II, pp. 13-17, served as the basis for an index of Personal Control. Items 3, 11, 15, 19 and 28 are buffer items.

4. Need-Achievement. An index of n-achievement was based on responses to the five projective test pictures contained in the Creative Writing Test, PartII, pp. 1-11. (See Part I.)

5. Exposure to the Dominant Society. Exposure indices are based on Part I, items 5, 10, 11, 12, 14, 15, 17, 18, 19, 20, 21 and 25. A second

index involves the number of months of white contact; a third the type of schools attended (items 11 and 12), and a fourth the form and extent of mass media exposure (items 17-20).

6. Access to Rewards of Dominant Society. This variable involves the actual socio-economic access of the student's parents, and the anticipated socio-economic access of the student himself. The index of parental socio-economic status is based on Part I, items 1, 2, 3, 4, 8 and 9, and items 6 and 7 combined into a room-person index. The index of anticipated socio-economic status is based on the Life Chances Inventory in Part II, pp. 18-22.

7. Identification with Dominant Society. An identification index is based on items 13, 16, 22, 23, 24 and 26 in Part I. All of these items involve preferences for traditional-Indian or for non-traditional Anglo traits and associations, such as type of schoolmates, friends, language, customs and reservation life.

HIGH SCHOOL QUESTIONNAIRE 1066

PART II

CREATIVE WRITING TEST

This is a test of your creative imagination. It consists of pictures that a local artist has drawn. You are to write a short story about each of the following pictures. There are no right or wrong answers, so feel free to make up any kind of story about each picture. Do not merely describe the picture but make a story about what is happening in it. A good story will also tell what happened before the picture, what the main character is thinking about, what is going to happen next, and how the story will end.

In order to help you write your story, space has been provided for your answers to each of these questions. Do not worry about spelling or grammar problems because this is a test of your creative imagination and not of English composition. You will be given about five minutes to write each story.

(3)

Picture 1. (Man talking with supervisor)

A. What is happening in this picture? ____________________

B. What happened before this picture? ____________________

C. What is the young man thinking or wanting? ____________

D. What will happen next? ____________________

E. How will the story end? ____________________

Picture 2. (Student thinking)

A. What is happening in this picture? ______

B. What happened before this picture? ______

C. What is the young man thinking or wanting? ______

D. What will happen next? ______

E. How will the story end? ______

Picture 3. (Man in the city)

A. What is happening in this picture? ______

B. What happened before this picture? ______

C. What is the young man thinking or wanting? ______

D. What will happen next? ______

E. How will the story end? ______

Picture 4. (Man speaking to a group)

A. What is happening in this picture? ____________________

B. What happened before this picture? ____________________

C. What is the young man thinking or wanting? ____________________

D. What will happen next? ____________________

E. How will the story end? ____________________

11
( )

Picture 5 (Man counting paper money)

A. What is happening in this picture?

B. What happened before this picture?

C. What is the young man thinking or wanting?

D. What will happen next?

E. How will the story end?

Social Reaction Inventory

We're going to ask some questions now, each of which has two parts, a and b. For each question, we want to know which part you believe is more true. In some cases you may believe both parts are true. In some cases you may think neither part is true. But, for every question, we want you to choose the part which you believe is more true.

Be sure to choose the one you actually believe to be more true, rather than the one you think you should choose or the one you would like to be true.

There are no right or wrong answers. This is a measure of your own beliefs.

Read both parts of each question. Then circle the letter a or b, whichever part you believe is more true. Each question should be answered by itself. Don't worry about how you have answered the others. Be sure to answer all the questions.

REMEMBER!

There are no right or wrong answers. Make the choice which you believe to be more true.

I more strongly believe that:

1. a. No matter how much a person tries, it's hard to change the way things are going to turn out.

   b. A person can pretty well make whatever he wants out of his life.

2. a. It's really easy to have friends; a person just needs to try to be friendly.

   b. Sometimes making friends is a matter of being lucky enough to meet the right people.

3. a. It's best to spend money when you have it, and let the future take care of itself.

   b. It's better to put money aside so you'll have it when you really need it.

4. a. In the long run, we ourselves are responsible for bad government.

   b. There's not much the average person can do about how the government runs.

5. a. Most people who get in trouble start out looking for it.

   b. Often trouble starts because a person happens to be in the wrong place at the wrong time.

6. a. Taking a true-false test is a lot like gambling; if you're lucky, you might make the right choices.

   b. The kid who studies can always do well on any test the teacher gives.

)14
( )

I more strongly believe that:

7. a. There's not much use in trying to change a person's basic attitudes.

   b. With the right approach, you can usually influence the way a person thinks.

8. a. When I make plans, I am almost certain that I can make them work.

   b. I have usually found that what is going to happen will happen regardless of my plans.

9. a. If people don't like you, it means that you don't know how to get along with others.

   b. It's impossible to figure out how to please some people.

10. a. Getting a job depends partly on being in the right place at the right time.

    b. If you're a good worker, you can always get a job.

11. a. It's very important to have your life laid out pretty far in advance.

    b. It's really not possible to see your life more than a year ahead.

12. a. Not everyone can be popular; so there's no use worrying about it.

    b. In the long run, popularity comes to those who work for it.

I more strongly believe that:

13. a. Getting into trouble depends completely on the kind of life you lead.

    b. If the breaks are against you, you can get into trouble.

14. a. Sometimes no matter how much you've thought something out, you can't get it across to people.

    b. If you know what's on your mind, it's easy to explain it to others.

15. a. The best way to get ahead in life is to move wherever you can get the best job.

    b. Nothing in life is worth the sacrifice of moving away from your parents.

16. a. Sometimes, when I don't understand something in school, it's because the teacher doesn't explain it well.

    b. Not paying attention in class is the main reason for not understanding the work.

17. a. A major cause of wars is that people do not take enough interest in world events.

    b. I feel more and more helpless in the face of what is happening in the world today.

18. a. My own efforts alone determine how successful I am as a leader.

    b. Without the right breaks you can't expect to be an effective leader.

I more strongly believe that:

19. a. Live in the present; the future will take care of itself.

    b. The future must be planned and prepared for.

20. a. If you aren't popular you haven't learned how to get along with others.

    b. Popularity depends a lot on what group you happen to get into.

21. a. Human nature being what it is, people can't change very much.

    b. If they work at it, people can make what they want of themselves.

22. a. There is no guarantee that a marriage will be happy; it depends in part on the breaks.

    b. You can always have a happy marriage if you work hard at it.

23. a. Becoming successful is sometimes a matter of getting the right breaks.

    b. Getting ahead in life depends entirely upon a person's ability.

24. a. When a boy gets good marks in school, it is usually because he was born with intelligence.

    b. Those students who do well in school are the ones who study hard.

I more strongly believe that:

25. a. It is usually good luck that gets a man a job.

    b. When a man finds a job, it is because he spent a lot of time looking for one.

26. a. How well you do in school depends on how hard you work.

    b. The grades you get in school depend partly on how much brains you were born with.

27. a. If you get into trouble, it's your own fault.

    b. Many people are victims of circumstances beyond their control.

28. a. I like to do things on the spur of the moment.

    b. I prefer to have things all planned out in advance.

29. a. No matter how hard a person tries, some people just don't like him.

    b. When a person isn't liked, it's because of the way he does things.

30. a. Working hard and steady is the way to get ahead in a job.

    b. Getting ahead in a job often depends on what kind of boss you happen to have.

(18)

LIFE CHANCES INVENTORY

In this questionnaire, we're interested in learning something about how teenagers see their futures. Almost everyone spends some time thinking about what life will be like for them. Please answer these questions about your own future as realistically and honestly as you can.

1. a. What job would you like to have when you are about 25 years old? Give the name of a job or occupation and say what you'd be doing on the job.

b. Assuming that wages then will be about the same as they are now, about how much money will you be making per year if you have this job? (Check one)

______ 0 to $2,000
______ $2,000 to $4,000
______ $4,000 to $6,000
______ $6,000 to $8,000
______ $8,000 to $10,000
______ $10,000 to $12,000
______ $12,000 to $14,000
______ $14,000 to $16,000
______ $16,000 to $18,000
______ over $18,000

c. There are many things which might keep a person from getting the job he would like to have. What are the things you feel might stand in the way of your getting this job?

d. Taking account of the things you have just written -- the things that could stand in your way -- what do you think your chances are of really having this job some day? (Circle one)

EXCELLENT   GOOD   FAIR   POOR

2. a. You have written some things which might stand in the way of your getting the job you would like to have. Taking account of things like this, and really being honest about it, what job do you really expect to have when you are 25? (Again, give the name of a job and say what you will be doing.)

b. Assuming wages then will be about the same as they are now, about how much money will you be making per year if you have this job? (Check one)

______ 0 to $2,000
______ $2,000 to $4,000
______ $4,000 to $6,000
______ $6,000 to $8,000
______ $8,000 to $10,000
______ $10,000 to $12,000
______ $12,000 to $14,000
______ $14,000 to $16,000
______ $16,000 to $18,000
______ over $18,000

3. Read the following two statements.

_______ A. In order to get ahead, it's most important to have a good education.

_______ B. In order to get ahead, it's most important to have practical experience.

Now put a check before the statement you most strongly believe to be true.

4. What do you really expect to do after you leave high school? Place a check mark after each statement under the heading which best describes when you plan to do it.

	RIGHT AWAY	LATER ON	NOT AT ALL
Go to a city to get a job			
Go to a business school or to vocational training			
Go to college			
Go into the service			
Get a job around home			

5. How much schooling do you really expect to finish?

a. Get a High School diploma. (Circle one)

VERY SURE PRETTY SURE NOT TOO SURE

b. Finish Business or Trade School. (Circle one)

VERY SURE PRETTY SURE NOT TOO SURE

c. Finish at least 2 years of College. (Circle one)

VERY SURE PRETTY SURE NOT TOO SURE

d. Finish 4 years of College. (Circle one)

VERY SURE PRETTY SURE NOT TOO SURE

(22)

6. What are the most important reasons that might keep you from going to college?

7. What do your parents or the people who are raising you want you to do after you finish high school? Place a check under the heading that tells when they want you to do each thing.

	RIGHT AWAY	LATER ON	NOT AT ALL
Go to a city to get a job			
Go to a business school or to vocational training			
Go to college			
Go into the service			
Get a job around home			

8. How often have you talked with your parents or the people who are raising you about your plans for the future? (Circle one)

MANY TIMES FOUR OR FIVE TIMES ONCE OR TWICE NEVER

Appendix G

LIST OF PERSONS AND SCHOOLS COOPERATING WITH THE HIGH SCHOOL STUDENT RESEARCH PROJECT: 1967

Robert L. Bennett, Commisioner of the Bureau of Indian Affairs

Carl Marburger, Commissioner of Education, Bureau of Indian Affairs

William J. Benham, Area Director of Schools, Window Rock, Arizona

Abe Tucker, Educational Specialist, Window Rock, Arizona

Allen Yazzie, Chairman Education Committee, Navajo Tribe, Window Rock, Arizona

SCHOOLS and PERSONNEL

1.	Albuquerque Indian School, (boarding),	Mr. Samuel Rosenberg, Principal
2.	Albuquerque Indian School, (bordertown),	Mr. Samuel Rosenberg, Principal Mr. Harry Saslow, Research Psychologist
3.	Holbrook Public School, (bordertown),	Mr. Norris A. Thompson, Principal
4.	Ganado Public School,	Mr. Walter Carpenter, Principal
5.	Ganado Mission School,	Reverend Dodd, Superintendent
6.	Sanders Arizona Public School,	Mr. Roberts, Principal Miss Florence McClure, Superintendent
7.	Wingate High School, (boarding),	Mr. Schienost, Principal Mr. Ernest Magnuson, Superintendent
8.	Window Rock Public High School, Fort Defiance, Arizona	Mr. George Burns, Principal
9.	Intermountain Indian School, (boarding), Brigham City, Utah	Miss Wilma Victor, Superintendent Mr. Webster, Principal
10.	Farmington High School,	Mr. Karl Zaffke, Principal
11.	Flagstaff Arizona, (bordertown),	Mr. Lee, Principal
12.	Chinlee Public School, Arizona,	Mr. Jodey Mathews, Principal
13.	Gallup Public School, New Mexico	Mr. Fitzsimmons, Superintendent McKinley County Schools. Mr. Adams, Principal Dr. Westeen, School Psychologist, McKinley County Schools
14.	Gallup (bordertown) Manuelito Hall	Miss Verna E. Enyart, Principal
15.	Gallup Cathedral High School,	Father Superior
16.	Rehobeth Mission, New Mexico,	Mr. K. Kuipers, Superintendent
17.	Farmington Mission, New Mexico,	Rev. Cloyd, Superintendent
18.	Winslow High School, Arizona,	Mr. James Curtis, Principal
19.	Winslow High School, (bordertown),	Mr. Roy L. Adkins, Principal
20.	Tuba City Public School,	Mr. Kirby Jackson, Superintendent Mr. George Gazzell
21.	Monument Valley Public High School, Kayenta, Arizona	Mr. Wilson, Principal
22.	Holy Rosary Mission Pineridge, South Dakota	Father Bryde
23.	Ogalala Community School	Mr. Bolinger, Principal
24.	St. Francis Mission School	Father Gill, Principal
25.	Todd County High School	Mr. Ocksner, Principal